

MARKED-UP VERSION OF SPECIFICATIONFOR APPLICATION NO. 10/582,327

DESCRIPTION

PROBE SET AND METHOD FOR IDENTIFYING HLA ALLELE

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TECHNICAL FIELD

The present invention relates to a probe set and a method for identifying an allele of human HLA.

10 BACKGROUND ART

Human leukocyte antigen (HLA) is known to include multiple HLA types, such as HLA-A, HLA-B, HLA-C, HLA-DP, HLA-DQ, HLA-DR, and HLA-MICA. An HLA allele is designated with a four or more digit number by the WHO HLA Nomenclature Committee. The principle of the nomenclature is that the first two digits correspond to the serotypes; the third and fourth digits distinguish the alleles of different amino acid sequences (subtypes); and the fifth digit distinguishes the alleles of different base sequences but encoding the same amino acid sequence. Typing of these alleles has been conventionally conducted at the serological level. Although this serological method does not require special sample processing, and enables easy typing using antigen-antibody reaction, the serotypes are the roughest classification corresponding to the first two digits

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of the numbers according to the nomenclature described above.

Many of other commercially available kits of the type associated with genomic extraction do not
5 have enough accuracy to identify each allele individually. It is the current state that such a kit distinguishes multiple alleles as a group. Moreover, even a kit based on the SBT (Sequencing Based Typing) method, which enables the most detailed
10 polymorphic analysis, often fails to solve the problem of ambiguity by one analysis since most samples are heterozygotes requiring reexamination. Such problematic alleles are listed collectively in <http://www.ihwg.org/protocols/sbt/ambiguities2.pdf> by
15 the International Histocompatibility Working Group (IHWG).

DISCLOSURE OF INVENTION

On the other hand, with the development of
20 advanced medical treatment in recent years, detailed HLA typing is required in organ transplantation, etc. In addition, associations of HLA with diabetes, cancer, and other multifactorial diseases have been suggested. With such a background, a test method is
25 desired that can identify each allele individually. Upon such demands it is an object of the present invention to provide a probe set that is useful for

identifying each allele of HLA individually, and a method for identification of an HLA allele by the use thereof.

A probe set for identifying an allele of HLA according to the present invention is a probe set comprising multiple probes that can be used for identifying HLA allele contained in a specimen, characterized in that each of the multiple probes comprises a partial sequence containing a base represented by a capital letter in a sequence of each allele in an allele list in the description.

An embodiment of the present invention is a probe set comprising multiple probes that can be used for identification of an HLA-A allele in a specimen, characterized in that each of the multiple probes comprises a partial sequence containing a base represented by a capital letter in a sequence of each allele in an allele list in the description.

Another embodiment of the present invention is a method for identification of an HLA-A allele contained in a specimen using a probe set, characterized in that the probe set is the probe set described above.

Another embodiment of the present invention is a probe set comprising multiple probes that can be used for identification of an HLA-B allele in a specimen, characterized in that each of the multiple

probes comprises a partial sequence containing a base represented by a capital letter in a sequence of each allele in an allele list in the description.

Another embodiment of the present invention is
5 a method for identification of an HLA-B allele contained in a specimen using a probe set, characterized in that the probe set is the probe set described above.

Another embodiment of the present invention is
10 a probe set comprising multiple probes that can be used for identification of an HLA-C allele in a specimen, characterized in that each of the multiple probes comprises a partial sequence containing a base represented by a capital letter in a sequence of each
15 allele in an allele list in the description.

Another embodiment of the present invention is a method for identification of an HLA-C allele contained in a specimen using a probe set, characterized in that the probe set is the probe set
20 described above.

Another embodiment of the present invention is a probe set comprising multiple probes that can be used for identification of an HLA-DP allele in a specimen, characterized in that each of the multiple
25 probes comprises a partial sequence including a base represented by a capital letter in the sequence of each allele in the allele list in the description.

Another embodiment of the present invention is a method for identification of an HLA-DP allele contained in a specimen using a probe set, characterized in that the probe set is the probe set
5 described above. Another embodiment according to the present invention is a probe set for identification of an HLA-DQ allele that is a probe set comprising multiple probes that can be used for identification of an HLA-DQ allele in a specimen, characterized in
10 that each of the multiple probes comprises a partial sequence containing a base represented by a capital letter in a sequence of each allele in an allele list in the description.

Another embodiment of the present invention is
15 a probe set comprising multiple probes that can be used for identification of an HLA-DQ allele in a specimen, characterized in that each of the multiple probes comprises a partial sequence containing a base represented by a capital letter in a sequence of each
20 allele in an allele list in the description.

Another embodiment of the present invention is a method for identification of an HLA-DQ allele contained in a specimen using a probe set, characterized in that the probe set is the probe set
25 described above.

Another embodiment of the present invention is a probe set comprising multiple probes that can be

used for identification of an HLA-DR allele in a specimen, characterized in that each of the multiple probes comprises a partial sequence containing a base represented by a capital letter in a sequence of each
5 allele in an allele list in the description.

Another embodiment of the present invention is a method for identification of an HLA-DR allele contained in a specimen using a probe set, characterized in that the probe set is the probe set
10 described above.

Another embodiment of the present invention is a probe set comprising multiple probes that can be used for identification of an HLA-MICA allele in a specimen, characterized in that each of the multiple
15 probes comprises a partial sequence containing a base represented by a capital letter in a sequence of each allele in an allele list in the description.

Another embodiment of the present invention is a method for identification of an HLA-MICA allele
20 contained in a specimen using a probe set, characterized in that the probe set is the probe set described above.

The probe set according to the present invention, and identification of an allele of each
25 HLA type by the use thereof can contribute to diathesis diagnoses and tailor-made medicines, which are required in organ transplantation, cancer,

diabetes, and other multifactorial diseases.

Other features and advantages of the present invention will be apparent from the following description.

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BEST MODE FOR CARRYING OUT THE INVENTION

Preferred embodiments of the present invention will now be described in detail. Each probe that constitutes the probe set of the present invention
10 has a partial sequence including a base represented by a capital letter in each allele sequence in the allele lists described later. Preferably, segments consisting of 10 to 30 bases including a base represented by a capital letter are selected from
15 each allele sequence, and the probe set is composed of probes having the obtained partial base sequences respectively. As specific examples, the following compositions can be employed:

1) A probe set for HLA-A allele identification
20 consisting of respective probes listed in one of the probe list A1 shown in Tables 1-1 to 1-7 and the probe list A2 shown in Tables 2-1 to 2-6 shown later;

2) A probe set for HLA-B allele identification consisting of probes listed in one of the probe list
25 B1 shown in Tables 5-1 to 5-9 and the probe list B2 shown in Tables 6-1 to 6-8 shown later;

3) A probe set for HLA-C allele identification

consisting of probes listed in one of the probe list C1 shown in Tables 9 and the probe list C2 shown in Table 10 shown later;

4) A probe set for HLA-DP allele identification
 5 consisting of probes listed in one of the probe lists DP1-DP4 shown in Tables 13-1 to 16-5 respectively as shown later;

5) A probe set for HLA-DQ allele identification consisting of probes listed in one of the probe lists
 10 DQ1 to DQ 4 shown in Tables 17A, 17B-1, 17B-2, 18A, 18B-1 and 18B-2 respectively as shown later;

6) A probe set for HLA-DR allele identification consisting of probes listed in one of the probe lists DR1 and DR2 shown in Tables 21-1 to 21-8 and Tables
 15 22-1 to 22-7 respectively, as shown later; and

7) A probe set for HLA-MICA allele identification consisting of probes listed in one of the probe lists MICA1 and MICA2 shown in Tables 25-
 ,1,25-2 and Tables 26-1 to 26-2 respectively, as
 20 shown later.

For example, the No.0 probe in the probe list A1 has a 16-base sequence of "gccccgcttcatcgcC", which is a segment containing the first capital lettered base C in A*010101, and the No.0 probe in
 25 the probe list 2 has an 18-base sequence of "cttcatcgcCgtgggcta", which is a segment also containing the first capital lettered base C in the

same allele.

In the allele list, each allele is assigned with a unique number such as "A*xxxx" in accordance with "allele nomenclature" by Japanese Society for
5 Histocompatibility and Immunogenetics, HLA Standardization Committee.

To identify an allele using a probe set according to the present invention, two methods are possible: one is detection by hybridization; and the
10 other is direct detection by PCR without hybridization. In either method, each probe is an oligonucleotide of preferably more than 10 and less than 30 nucleotides in length and designed to include the base represented by a capital letter, i.e., a
15 base specific for the allele to be identified.

Moreover, the probe arrays provided in the present invention present groups of varied bases for identification of each allele individually by positions chosen for the probes. As a method for
20 detection of such a varied base, the detection method by hybridization, and the method of direct detection by PCR without hybridization can also be preferably used. Also in these cases, the probes are designed as oligonucleotides of preferably more than 10 and
25 less than 30 nucleotides in length each containing a base represented by a capital letter.

When a variation is detected by hybridization,

probes are preferably designed to have a variant base represented by a capital letter near the center of the probes, which makes T_m difference between full-matched and mismatched pairs larger, enabling easier
5 separation of them by adjusting the reaction temperature of hybridization.

On the other hand, when the variation is directly detected by PCR, the variant base is rather placed near the 3' end so that enzymatic recognition
10 and elongation of annealed double strands will not occur. Also, some variation methods are possible, such as a method placing a variant base at the second from the 3' end an artificial variant base at the third from the 3' end as with Allele Specific Primer
15 (Toyobo Co., Ltd.); a method circularizing probes by ligation with a mismatch placed near the 3' end (Amersham Biosciences Co., Ltd.); TaqMan-MGB (ABI Co.); and 3'-end mismatch using LNA (Proligo Japan Co., Ltd.).

20 For example, a segment including the fourth capital letter of A*2302 is "ggagcagTggagagC", and the corresponding segment of A*2303 of the same serotype is "ggagcagtTgagagc", differing at the ninth base. By using a probe with a sequence of one of
25 these segments, one can be distinguished from the other by mismatching.

[EXAMPLES]

The present invention will be described further by way of examples in the following. ~~The SEQ ID NOS of the sequences in Examples are in the following~~
 5 ~~relation:~~

~~Examples 1 and 2: Sequence Listing A~~

~~Examples 3 and 4: Sequence Listing B~~

~~Examples 5 and 6: Sequence Listing C~~

~~Examples 7 and 8: Sequence Listing DP~~

10 ~~Examples 9 and 10: Sequence Listing DQ~~

~~Examples 11 and 12: Sequence Listing DR~~

~~Examples 13 and 14: Sequence Listing MICA.~~

(Example 1)

15 Probes for identification of HLA-A allele

Extraction of DNA from 1 ml of human blood was performed using GFX Genomic Blood DNA Purification Kit from Amersham Biosciences. The protocol is as follows:

20 Blood 1 ml →

Add RBC Lysis Solution [hemolysate] →

Mix gently at room temperature for 5 minutes →

Centrifuge at 12,000-16,000 × g for 20 seconds →

Discard the supernatant leaving 20-50 µl →

25 Resuspend the precipitation →

Add Extraction Solution and vortex vigorously →

Stand at room temperature for 5 minutes [extraction

- of DNA] →
- Set a GFX Column in a Collection Tube →
- Heat the elution buffer to 70°C →
- Add the sample →
- 5 Centrifuge at 5,000 × g for 1 minute (binding of DNA)
→
- Add Extraction Solution (washing) →
- Centrifuge at 5,000 × g for 1 minute →
- Add Washing Solution (washing) →
- 10 Centrifuge at 12,000 × g for 3 minutes →
- Set a GFX Column in a centrifugal tube →
- Eluate with pure water →
- Stand at room temperature for 1 minute →
- Centrifuge at 5,000–8,000 × g for 1 minute →
- 15 Concentrate to 230 µl solution (1).

Next, quantitative PCR was carried out using
 QuantiTect SYBR Green PCR Kit from QIAGEN and
 GeneAmp5700 from ABI. The reaction composition and
 20 the protocol are shown below.

- 1) Reaction composition/well (96 well microplate)
- QuantiTect SYBR Green 2 × premix: 10 µl
- Solution (1): 1 µl
- Solution of one of the probes in the probe list
- 25 A1(10 pmol/µl): 1 µl
- Mixed primers (10 pmol/µl)*: 3 µl
- Ultra pure water: 5 µl

(Total: 20 μ l)

*consisting of 1 μ l each of the solutions respectively containing probes of the following sequences at 10 pmol/ μ l:

5 CCCATCTCAGGGTGAGGGGCT (SEQ ID NO: 632)
 GCGCTGCAGCGTCTCCTTCC (SEQ ID NO: 633)
 GCCCAGGTCTGGGTCAGGGCCAG (SEQ ID NO: 634)

2) PCR program

94°C: 180 sec followed by 30 cycles of [94°C: 10
 10 sec \rightarrow 66°C: 10 sec \rightarrow 72°C: 20 sec.].

Referring to Amp Plot and Dissociation curves on a display of 5700 software, and to the allele-probe correspondence list A1 (Tables 3-1 to 3-9), it was identified as A*2402101.

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(Example 2)

Extraction of DNA from 1 ml of human blood was performed in the same manner as in Example 1. PCR of human HLA-A was then performed using ABI 9700 PCR
 20 Instrument and Ex Taq from Takara Bio Inc. The reaction composition and the protocol are as follows:

1) Reaction composition/tube

Ex Taq 2 \times premix: 20 μ l
 Solution (1): 3 μ l
 25 Cy-3 dUTP (1 mM): 2 μ l
 Mix primer (10 pmol/ μ l)*: 3 μ l
 Ultra pure water: 12 μ l

(Total: 40 μ l)

*consisting 1 μ l each of the solutions respectively containing probes of the following sequences at 10 pmol/ μ l:

- 5 ATGGCTCCCCGAACCCTC (SEQ ID NO: 635)
 ATGGCGCCCCGAACCCTC (SEQ ID NO: 636)
 CATCTCAGGGTGAGGGGCT (SEQ ID NO: 637)

2) PCR program

94°C: 180 sec followed by 30 cycles of [94°C: 10
 10 sec → 66°C: 10 sec → 72°C: 20 sec]

After the completion of the reaction, unreacted dNTPs, etc., were removed using a purification column (QIAGEN QIAquick PCR Purification Kit) to obtain a sample.

15 At the same time, a DNA microarray was prepared to identify the allele in the specimen described above. The method for the preparation was in accordance with examples in Japanese Patent Application Laid-Open No. H11-187900. SH group was
 20 used as the functional group for immobilization. A glass substrate was treated by a silane-coupling agent to bind the SH group of the probes via a divalent reagent EMCS (N-(6-maleimidocaproyloxy)succinimide). Each probe in the
 25 probe list A2 was used for each dot.

The DNA microarray was blocked in advance with PBS supplemented with 1 wt% of BSA (bovine serum

albumin) for two hours. The sample was adjusted to have a salt concentration equal to that of the PBS, and to contain 0.1 wt% of SDS (sodium dodecyl sulfate) and 25% of formamide.

5 Then, hybridization was performed using the above sample (PCR product) and the prepared DNA microarray. 50 μ l of the sample was reacted with the blocked DNA microarray at 60 °C for 2 hours. Unreacted substances were washed off by washing three
10 times with 2 × SSC solution (NaCl 300 mM, Sodium Citrate (trisodium citrate dihydrate, $C_6H_5Na_3 \cdot 2H_2O$) 30 mM, pH 7.0), followed by washing twice with 0.1 × SSC solution. The DNA microarray was air-dried and the fluorometry measurement was conducted using
15 GenePix4000B made by Axon. Referring to the allele-probe list A2 (Tables 4-1 to 4-9), the sample was identified as A*2402101.

A*010101 :

atggccgtcatggcgccccgaaccctcctcctgctactctcgggggccctggccctgaccagacctggcggggct
20 cccaactocatgaggtatttcttcacatccgtgtcccgcccgccgaggagccccgcttcatcgCgtgggcta
cgtggacgacacgcagttcgtgcggttcgacagcgacgccgagccagaagatggagccgaggcgccgtggata
gagcaggagggggccggagtattgggaccaggagacacggaatAtgaaggcccactcacagactgaccgagcgaacc
tggggaccctgcgcggctactacaaccagagcgaggacgggttctcacaccatccagataatgtatggctgcgacgt
ggggccggacggcgcttctccgcggtaccggcaggacgcctacgacggcaaggattacatcgccctgaacgag
25 gacctgcgctcttggaccgcgcgacatggcagctcagatcaccaagcgcaagtgggaggcggtccatgcggcgg
agcagcgagagTctacctggagggcCGgtgcgtggacgggctccgcagatacctggagaacgggaaggagacgt
gcagcgacggaccccccaagacacatatgacccaccaccccatctctgacctgaggccaccctgaggtgctgg

gccctgGgcttctaccctgcggagatcacactgacctggcagcgggatggggaggaccagaccaggacacggagc
tcgtggagaccaggcctgcaggggatggaaccttcagaagtggcggtgtggtggtGccttctggaGaggagca
gagatacacctgcatgtgcagcatgagggctctgccaagcccctcacctgagatgggag (SEQ ID
NO:1) ;

5 A*010102 :

gctccactccatgaggtatttcttcacatccgtgtccggcccgccggggagccccgcttcatcgccgtggg
ctacgtggagacacgcagttcgtgcggttcgacagcgacccgcgagccagaagatggagccggcgccgtgg
atagagcaggagggcgaggtattgggaccaggagacacggaatatgaaggccactcacagactgaccgagcga
acctggggaccctgcgcggctactacaaccagagcgaggacggttctcacaccatccagataatgtatggctgcga
10 cgtggggccggacggcgcttctccgcgggtaccggcaggacgcctacgacggcaaggattacatcgccctgaac
gaggacctgcgctcttggaccgcgcgacatggcagctcagatTaccaagcgcaagtgggagggcggtccatgcgg
cggagcagcggagagtctacctggaggcggtgcgtggacgggtccgcagataacctggagaacgggaaggagac
gctgcagcgacgg (SEQ ID NO: 2) ;

A*0102 :

15 atggccgtcatggcgccccgaacctcctcctgctactctcgggggccctggccctgaccagacctggcggggt
cccactccatgaggtatttctCacatccgtgtcccgcccggcagtggAgagccccgcttcatcgagtgaggcta
cgtggacgacacgcagttcgtgcggttcgacagcgacccgcgagccagaagatggagccggcgccgtggata
gagcaggagggcgcgaggtattgggaccaggagacacggaatatgaaggccactcacagactgaccgagcgaacc
tggggaccctgcgcggctactacaaccagagcgaggacggttctcacaccatccagataatgtatggctgcgacgt
20 ggggcccggacggcgcttctccgcgggtaccggcaggacgcctacgacggcaaggattacatcgccctgaacgag
gacctgcgctcttggaccgcgcgacatggcagctcagatcaccaagcgcaagtgggagggcggtccatgcggcgg
agcagcggagagtctacctggaggcggtgcgtggacgggtccgcagataacctggagaacgggaaggagacgct
gcagcgacggaccccccaagacacatatgaccaccaccccatctctgacctgaggccaccctgaggtgctgg
gccctgggcttctaccctgcggagatcacactgacctggcagcgggatggggaggaccagaccaggacacggagc
25 tcgtggagaccaggcctgcaggggatggaaccttcagaagtggcggtgtggtggtGccttctggagaggagca
gagatacacctgcatgtgcagcatgagggctctgccaagcccctcacctgagatgggag (SEQ ID NO: 3)

A*0103 :

gctccactccatgaggtattttcttcacatccgtgtcccggcccgccggggagccccgcttcacgcccgtggg
 ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgagccagaagatggagccgcccgcgcccgtgg
 atagagcaggaggggcccggagtattgggaccaggagacacggaatatgaaggccactcacagactgaccgagcga
 acctggggaccctgcgcggctactacaaccagagcgaggacggttctcacaccatccagatGatgtatggctgcga
 5 cgtggggccggacggcgcttcctccgcggtaccggcaggacgcctacgacggcaaggattacatcgccctgaac
 gaggacctgcgctcttggaccgcgcgacatggcagctcagatcaccaagcgcaagtgggagggcggtccatgcgg
 cggagcagcggagagtctacctggaggccgggtgcgtggacgggctccgcagataacctggagaacgggaaggagac
 gctgcagcgcacgg (SEQ ID NO: 4) ;

A*0106 :

10 gctccactccatgaggtattttcttcacatccgtgtcccggcccgccggggagccccgcttcacgcccgtggg
 ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgagccagaagatggagccgcccgcgcccgtgg
 atagagcaggaggggcccggagtattgggaccaggagacacggaatatgaaggccactcacagactgaccgagcga
 acctggggaccctgcgcggctactacaaccagagcgaggacggttctcacaccatccagataatgtatggctgcga
 cgtggggccggacggcgcttcctccgcggtaccggcaggacgcctacgacggcaaggattacatcgccctgaac
 15 gaggacctgcgctcttggaccgcgcgacatggcagctcagatcaccaagcgcaagtgggagggcggtccatgcgg
 cggagcagTTgagagcctacctggaggccgggtgcgtggacgggctccgcagataacctggagaacgggaaggagac
 gctgcagcgcacgg (SEQ ID NO:5) ;

A*0107 :

20 gctccactccatgaggtattttcttcacatccgtgtcccggcccgccggggagccccgcttcacgcccgtggg
 ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgagccagaagatggagccgcccgcgcccgtgg
 atagagcaggagaggccTgagtattgggaccaggagacacggaatgtgaaggccactcacagactgaccgagAga
 acctggggaccctgcgcggctactacaaccagagcgaggCcggttctcacaccatccagataatgtatggctgcga
 cgtggggccggacggcgcttcctccgcggtaccggcaggacgcctacgacggcaaggattacatcgccctgaac
 gaggacctgcgctcttggaccgcgcgacatggcagctcagatcaccaagcgcaagtgggagggcggtccatgcgg
 25 cggagcagcggagagtctacctggaggccgggtgcgtggacgggctccgcagataacctggagaacgggaaggagac
 gctgcagcgcacgg (SEQ ID NO: 6) ;

A*0108 :

gctccactccatgaggtattttcttcacatccgtgtcccggcccgccgaggagccccgcttcatcgccgtggg
 ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgagccagaagatggagccgcgggcgccgtgg
 atagagcaggaggggcccggagtattgggaccaggagacacggaatatgaaggccactcacagactgaccgagcga
 acctggggaccctgcgcggctactacaaccagagcgaggacggttctcacaccatccagataatgtatggctgcga
 5 cgtggggccgacggcgcttcctccgcggtaccggcaggacgcctacgacggcaaggattacatcgccctgaac
 gaggacctgcgctcttgaccgcggcgacatggcagctcagatcaccaagcgcaagtgggagggcggtccatgcgg
 cggagcagcgagagtctacctggagggcTggtgcgtggacgggctccgcagataacctggagaacgggaaggagac
 gctgcagcgacgg (SEQ ID NO: 7) ;

A*0109 :

10 atggccgtcatggcgccccgaacctcctcctgctactctcgggggccctggccctgaccagacctggcggggct
 cccactccatgaggtattttcttcacatccgtgtcccggcccgccgaggagccccgcttcatcgccgtgggcta
 cgtggacgacacgcagttAgtgcggttcgacagcgacgccgagccagaagatggagccgcgggcgccgtggata
 gagcaggagggggccggagtattgggaccaggagacacggaatatgaaggccactcacagactgaccgagcgaacc
 tggggaccctgcgcggctactacaaccagagcgaggacggttctcacaccatccagataatgtatggctgcgacgt
 15 ggggcccggacggcgcttcctccgcggtaccggcaggacgcctacgacggcaaggattacatcgccctgaacgag
 gacctgcgctcttgaccgcggcgacatggcagctcagatcaccaagcgcaagtgggagggcggtccatgcggcgg
 agcagcggagagtctacctggagggccggtgcgtggacgggctccgcagataacctggagaacgggaaggagacgct
 gcagcgacggaccccccaagacacatatgaccaccaccccatctctgacctgaggccaccctgaggtgctgg
 gccctgggcttctacctgcggagatcacactgacctggcagcgggatggggaggaccagaccaggacacggagc
 20 tcgtggagaccaggcctgcaggggatggaaccttcagaagtggcgggctgtggtggtgccttctggagaggagca
 gagatacacctgccatgtgcagcatgagggctctgcccaagcccctaccctgagatgggag (SEQ ID NO:
 8) ;

A*020101 :

atggccgtcatggcgccccgaacctcgtcctgctactctcgggggcTctggccctgaccagacctggcggggct
 25 ctactccatgaggtattttcttcacatccgtgtcccggcccgccgaggagccccgcttcatcgcagtgggcta
 cgtggacgacacgcagttcgtgcggttcgacagcgacgccgagccagaggatggagccgcgggcgccgtggata
 gagcaggaggggtccgagtattgggacggggagacacggaaAgtgaaggccactcacagactCaccgagtggacc

tggggaccctgcgcggctactacaaccagagcgaggccggttctcacaccGtccagaGgatgtatggctgcgacgt
 ggggtcggacTggcgcttctccgcgggtaccaccagtagcctacgacggcaaggattacatcgccctgaaagag
 gacctgcgctcttggaccgcggcgacatggcagctcagaccaccaagcacaagtgggaggcggcccatgTggcgg
 agcagtTgagagcctacctggagggcaGgtgcgtggagtggctccgcagatacctggagaacgggaaggagacgct
 5 gcagcgcacggacgccccaaaacgcatatgactcaccacgctgtctctgacctgaagccaccctgaggtgctgg
 gccctgagcttctacctgcggagatcacactgacctggcagcgggatggggaggaccagaccaggacacggagc
 tcgtggagaccaggcctgcaggggatggaaccttcagaagtgggcggctgtggtggcttctggacaggagca
 gagatacacctgccatgtgcagcatgagggTtGCCAAGCCCTCACCTGAGATGGGAG (SEQ ID NO:
 9) ;
 10 A*020102 :
 gctccactccatgaggtatttcttcacatccgtgtcccgcccgccgcggggagccccgcttcatcgcAgtggg
 ctacgtggacgacacgcagttcgtgcggttcgacagcgacgcgcgagccagaggatggagccgcgggcgcctgg
 atagagcaggagggtccggagtattgggacgGggagacacggaaAgtgaaggccactcacagactCaccgagtgg
 acctggggaccctgcgcggctactacaaccagagcgaggccggttctcacaccGtccagaGgatgtatggctgcga
 15 cgtggggtcggacTggcgcttctccgcgggtaccaCagTaccgctacgacggcaaggattacatcgccctgaaA
 gaggacctgcgctcttggaccgcggcgacatggcagctcagaCaccaagcacaagtgggaggcggcccatgTgg
 cggagcagtTgagagcctacctggagggcaGgtgcgtggagTggctccgcagatacctggagaacgggaaggagac
 gctgcagcgacgg (SEQ ID NO: 10) ;
 A*020103 :
 20 aaccctcgtcctgctactctcggggctctggccctgaccagacctgggcgggctctcactccatgaggtatttc
 ttcacatccgtgtcccgcccgccgcggggagccccgcttcatcgcagtgggctacgtggacgacacgcagttcg
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NO:29) ;

A*0214 :

20 cgtcatggcgccccgaacctcgtcctgctactctcgggggctctggccctgaccagacctggcggggtctcac
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25 cggactggcgcttctGcgcggtaccaccagtacgcctacgacggcaaggattacatcgccctgaaagaggacct
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5 A*0216 :

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A*021701 :

20 atggccgtcatggcTccccgaacctcgtcctgtactctcgggggctctggccctgaccagacctggcggggct
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5 NO:32) ;

A*021702 :

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A*0218 :

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NO:34) ;

5 A*0219 :

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A*022001 :

15 gctctcactccatgaggtatttcttcacatccgtgtcccggcccggcggggagccccgcttcacgcAgaggg
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A*022002 :

25 gctctcactccatgaggtatttcttcacatccgtgtcccggcccggcggggagccccgcttcacgcagtgagg
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5 A*0221 :

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10 tggggaccctgcgcggctactacaaccagagcgaggccggttctcacaccgtccagaggatgtatggctgcgacgt
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NO:38) ;

A*0222 :

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25 ggggtcggacTggcgcttcctccgcggtaccaccagtagcctacgacggcaaggattacatcgccctgaaagag
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A*0224 :

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15 A*0225 :

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A*0226 :

25 gtcatgggccccgaaccctcgtcctgctactctogggggcTctggccctgaccagacctgggcgggctctcact
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 10 A*0227 :
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 A*0228 :
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A*0229 :

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10 A*0230 :

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A*0231 :

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A*0233 :

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20 A*0234 :

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 25 cgtggggtcggacTggcgcttcctccgcgggtaccaccagtagcctacgacggcaaggattacatcgccctgaaa
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5 NO:49) ;

A*0235 :

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 10 acctggggaccctgcgcggctactacaaccagagcgaggccggttctcacaccGtccagaGgatgtatggctgcga
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15 A*0236 :

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A*0237 :

25 gctctcactccatgaggtatttcttcacatccgtgtcccggcccgccggggagccccgcttcatcgagtgagg
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5 gctgcagcgacgg (SEQ ID NO:52) ;

A*0238 :

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15 A*0239 :

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A*0240 :

25 gctctcactccatgaggtatttcttcacatccgtgtcccggcccgccggggagccccgcttcacgcagtggg
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A*0241 :

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15 A*0242 :

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A*0244 :

25 gctctcactccatgaggtatttctacacGtccgtgtcccggcccgccggggagccccgcttcacgcagtaggg
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A*0245 :

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15 A*0246 :

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25 A*0247 :

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A*0248 :

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 10 atagagcaggaggggcccggagtattgggacgaggagacaGggaaagtgaaggccactcacagactgaccgagtgg
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 15 gctgcagcgcacgg (SEQ ID NO:62) ;

A*0249 :

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25 A*0250 :

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A*0251 :

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 10 atagagcaggaggggtccggagtattgggacggggagacacggaaagtgaaggccactcacagactcaccgagtgg
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A*0252 :

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25 A*0254 :

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A*0255 :

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 10 atagagcaggaggggcccggagtattgggaccggaaGacacggaatgtgaaggccactcacagactCaccgagtgg
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 15 gctgcagcgcacgg (SEQ ID NO:68) ;

A*0256 :

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 25 gcagcgcacggacgccccaaaacgcatatgactcaccacgctgtctctgaccatgaagccaccctgaggtgctgg
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A*0257 :

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A*0258 :

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25 A*0259 :

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 5 cggagcagttgagagcctacctggagggcacgtgcgtggagtggctccgcagataacctggagaacgggaaggagac
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 10 N0:72) ;
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 15 acctggggaccctgcgcggctactacaaccagagcgaggccggttctcacaccgtccagaggatgtatggctcga
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A*1103

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A*1111 :

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25 atagagcaggagggcgcgagtatgggaccTgcagacacggaatgtgaaggcccagtcacagactgaccgagtG
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gaggacctgcgctcttggaccgcggcgacatggcagctcagatcaccaagcgcaagtgggaggcgcccatgcgg
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A*1112 :

5 ggctcccactccatgaggtatttctacacCtccgtgtcccggcccgccgaggagccccgcttcatcgccgtgg
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A*1113 :

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A*1114 :

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A*2301 :

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NO:100) ;

A*2302 :

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25 cggagcagTggagagGctacctggagggcaGtgcgtggacgggtccgcagataacctggagaacgggaaggagac
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A*2303 :

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A*2304 :

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A*2305 :

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A*2306 :

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 25 ttgtggagaccaggcctgcaggggatggaaccttcagaagtgggcAgctgtggtggtaccttctggagaggagca
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A*240201 :

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15 A*240202 :

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A*240203 :

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 A*240302 :
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NO:113) ;

A*2405 :

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A*2406 :

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A*2407 :

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25 gagcaggagggcgaggatattgggacgaggagacagggaaagtgaaggcccaGtcacagactgaccgagagaacc
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 NO:116) ;
 A*2408 :
 atggccgtcatggcgccccgaacctcgtcctgtactctcgggggccctggccctgaccagacctgggcaggct
 10 cccaAtccatgaggtatttctccacatccgtgtcccggcccggcgcggggagccccgcttcatcgccgtgggcta
 cgtggacgacacgcagttcgtgcggttcgacagcgacgccgcgagccagaggatggagccgcgggcccgtggata
 gagcaggaggggccggagtttgggacggggagacacggaaagtgaaggccactcacagactgaccgagagaacc
 tgcggatcgcgctccgctactacaaccagagcgaggccggttctcacaccctccagatgatgtttggtcgcacgt
 ggggtcggacggcgcttctccgcggtaccaccagtacgcctacgacggcaaggattacatcgccctgaaagag
 15 gacctgcgctcttggaccgcggcgacatggcggctcagatcaccaagcgcaagtgggaggcggcccatgtggcgg
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 gcagcgcacggaccccccaagacacatatgaccaccaccccatctctgacctgaggccactctgagatgctgg
 gccctgggcttctaccctgcggagatcacactgacctggcagcgggatggggaggaccagaccaggacacggagc
 ttgtggagaccaggcctgcaggggatggaaccttcagaagtgggcagctgtggtggtAccttctggagaggagca
 20 gagatacacctgccatgtgcagcatgagggtctgccaagcccctcacctgagatgggag (SEQ ID
 NO:117) ;
 A*2410 :
 gctccactccatgaggtatttctccacatccgtgtcccggcccggcgcggggagccccgcttcatcgccgtggg
 ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgcgagccagaggatggagccgcgggcccgtgg
 25 atagagcaggaggggccggagtttgggacgaggagacaGggaaagtgaaggccactcacagactgaccgagaga
 acctgcggatcgcgctccgctactacaaccagagcgaggccggttctcacaccctccagatgatgtttggtcga
 cgtggggtcggacggcgcttctccgcggtaccaccagtacgcctacgacggcaaggattacatcgccctgaaa

gaggacctgcgctcttggaccgcgcgacatggcggctcagatcaccaagcgcaagtgggaggcgcccatgtgg
cggagcagcAgagagCctacctggaggcgcggtgcgtggaGTggctccgcagatacctggagaacgggaaggagac
gctgcagcgcacgg (SEQ ID NO:118) ;

A*2413 :

5 gctccactccatgaggtatttctccacatccgtgtccggcccgccgaggagccccgcttcatcgccgtggg
ctacgtggacgacacgcagttcgtgcggttcgacagcgacgcccgcagccagaggatggagccgcgccgtgg
atagagcaggagggcgcgagtattgggacgaggagacaGggaaagtgaaggccactcacagactgaccgagaga
acctgcggatcgcgctccgctactacaaccagagcgaggccggttctcacaccctccagatgatgtttggctgcga
cgtggggtcgacggcgcttcctccgcggtaccaccagtacgcctacgacggcaaggattacatcgccctgaaA
10 gaggacctgcgctcttggaccgcgcgacatggcGgctcagatcaccaagcgcaagtgggaggcgcccatgTgg
cggagcagtTgagagCctacctggaggcgcaGgtgcgtggacgggctccgcagatacctggagaacgggaaggagac
gctgcagcgcacgg (SEQ ID NO:119) ;

A*2414 :

gctccactccatgaggtatttctccacatccgtgtccggcccgccgaggagccccgcttcatcgccgtggg
15 ctacgtggacgacacgcagttcgtgcggttcgacagcgacgcccgcagccagaggatggagccgcgccgtgg
atagagcaggagggcgcgagtattgggacgaggagacaGggaaagtgaaggccactcacagactgaccgagaga
acctgcggatcgcgctccgctactacaaccagagcgaggccggttctcacaccgtccagaggatgtatggctgcga
cgtggggtcgacTggcgcttcctccgcggtaccaccagTaccgcctacgacggcaaggattacatcgccctgaaA
gaggacctgcgctcttggaccgcgcgacatggcGgctcagatcaccaagcgcaagtgggaggcgcccatgtgg
20 cggagcagcAgagagCctacctggaggcgcaGgtgcgtggacgggctccgcagatacctggagaacgggaaggagac
gctgcagcgcacgg (SEQ ID NO:120) ;

A*2415 :

gctccactccatgaggtatttctccacatccgtgtccggcccgccgaggagccccgcttcatcgccgtggg
ctacgtggacgacacgcagttcgtgcggttcgacagcgacgcccgcagccagaggatggagccgcgccgtgg
25 atagagcaggagggcgcgagtattgggacgaggagacaGggaaagtgaaggccactcacagactgaccgagaga
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cgtggggcgacggcgcttcctccgcggtaccaccagTaccgcctacgacggcaaggattacatcgccctgaaA

gaggacctgcgctcttggaccgcgcgacatggcGgctcagatcaccaagcgcaagtgggaggcgcccatgtgg
cggagcagcAgagagCctacctggagggaCgtgcgtggacgggctccgcagatacctggagaacgggaaggagac
gctgcagcgacgg (SEQ ID NO:121) ;

A*2417 :

5 gctccactccatgaggtatttctccacatccgtgtccggccccggcggggagccccgcttcacgcgcgtggg
ctacgtggacgacacgcagttcgtgcggttcgacagcgacgcccgcagccagaggatggagccgcgccgtgg
atagagcaggagggcgaggtattgggacgaggagacaGggaaagtgaaggccactcacagactgaccgagaga
acctgcggatcgcgctcGctactacaaccagagcgaggCcggttctcacaccctccagatgatgtTtggctgcga
cgtggggTcgacggcgcttcctccgcggtaccggcaggacgcctacgacggcaaggattacatgccctgaaA
10 gaggacctgcgctcttggaccgcgcgacatggcGgctcagatcaccaagcgcaagtgggaggcgcccatgtgg
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gctgcagcgacgg (SEQ ID NO:122) ;

A*2418 :

gctccactccatgaggtatttctccacatccgtgtccggccccggcggggagccccgcttcacgcgcgtggg
15 ctacgtggacgacacgcagttcgtgcggttcgacagcgacgcccgcagccagaggatggagccgcgccgtgg
atagagcaggagggcgaggtattgggacgaggagacagggaagtgaaggccactcacagactgaccgagaga
acctgcggatcgcgctccgctactacaaccagagcgaggccggttctcacaccctccagatgatgtttggctgcga
cgtggggTcgacggcgcttcctccgcggtaccaccagtagcctacgacggcaaggattacatgccctgaaA
gaggacctgcgctcttggaccgcgcgacatggcggctcagatcaccaagcgcaagtgggaggcgcccatGAgg
20 cggagcagTtagagcctacctggaTggcagctgcgtggagtggctccgcagatacctggagaacgggaaggagac
gctgcagcgacgg (SEQ ID NO:123) ;

A*2419 :

gctccactccatgaggtatttctccacatccgtgtccggccccggcggggagccccgcttcacgcgcgtggg
ctacgtggacgacacgcagttcgtgcggttcgacagcgacgcccgcagccagaggatggagccgcgccgtgg
25 atagagcaggagggcgaggtattgggacgaggagacaGggaaagtgaaggcccaGtcacagactgaccgagtG
acctggggaccctgcgcgctactacaaccagagcgaggacgggttctcacaccctccagatgatgtTtggctgcga
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gaggacctgcgctcttggaccgcgcgacatggcGgctcagatcaccaagcgcaagtgggaggcgcccatgtgg
cggagcagcAgagagCctacctggagggcaGgtgcgtggacgggctccgcagatacctggagaacgggaaggagac
gctgcagcgcacgg (SEQ ID NO:124) ;

A*2420 :

5 gctcccaatccatgaggtatttctccacatccgtgtcccggcccggcggggagccccgcttcatcgccgtggg
ctacgtggacgacacgcagttcgtgcggttcgacagcgacgcccgcagccagaggatggagccgcgccgtgg
atagagcaggagggcgaggtattgggacgaggagacaGggaaagtgaaggccactcacagactgaccgagaga
acctgcggatcgcgctcGgtactacaaccagagcgaggGcggttctcacaccctccagatgatgtTtggctgcga
cgtggggTcgacggcgcttccctccgcggtaccaccagTaccgctacgacggcaaggattacatcgccctgaaA
10 gaggacctgcgctcttggaccgcgcgacatggcGgctcagatcaccaagcgcaagtgggaggcgcccatgtgg
cggagcagcAgagagCctacctggagggcaGgtgcgtggacgggctccgcagatacctggagaacgggaaggagac
gctgcagcgcacgg (SEQ ID NO:125) ;

A*2421 :

gctcccaatccatgaggtatttctccacatccgtgtcccggcccggcggggagccccgcttcatcgccgtggg
15 ctacgtggacgacacgcagttcgtgcggttcgacagcgacgcccgcagccagaggatggagccgcgccgtgg
atagagcaggagggcgaggtattgggacgaggagacaGggaaagtgaaggccactcacagactgaccgagaga
acctgcggatcgcgctcGgtactacaaccagagcgaggGcggttctcacaccctccagatgatgtTtggctgcga
cgtggggTcgacggcgcttccctccgcggtaccaccagTaccgctacgacggcaaggattacatcgccctgaac
gaggacctgcgctcttggaccgcgcgacatggcGgctcagatcaccaagcgcaagtgggaggcgcccatgtgg
20 cggagcagcAgagagCctacctggagggcaGgtgcgtggacgggctccgcagatacctggagaacgggaaggagac
gctgcagcgcacgg (SEQ ID NO:126) ;

A*2422 :

atggcgtcatggcggccgaacctcgtcctgctactctcgggggccctggccctgaccagacctgggcaggct
ccactccatgaggtatttctccacatccgtgtcccggcccggcggggagccccgcttcatcgccgtgggcta
25 cgtggacgacacgcagttcgtgcggttcgacagcgacgcccgcagccagaggatggagccgcgccgtggata
gagcaggagggcgaggtattgggacgaggagacagggaaagtgaaggccactcacagactgaccgagagaacc
tgcgatcgcgctccgctactacaaccagagcgaggcggttctcacaccctccagatgatgtttggctgcgacgt

ggggtcggacggcgcttctccgcggtaccaccagtagcctacgacggcaaggattacatcgccctgaaagag
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agcagTggagagtctacctggagggcacgtgcgtggagTggctccgcagataacctggagaacgggaaggagacgct
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5 gccctgggcttctaccctgcggagatcacactgacctggcagcgggatggggaggaccagaccaggacacggagc
ttgtggagaccaggcctgcaggggatggaaccttcagaagtgggcAgctgtggtgtaccttctggagaggagca
gagataacctgccatgtgcagcatgagggtctgccaagcccctcacctgagatgggag (SEQ ID
NO:127) ;

A*2423 :

10 gctccactccatgaggtatttctccacatccgtgtccggcccgccggggagccccgcttcatcgccgtggg
ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgagccagaggatggagccgcgggcgccgtgg
atagagcaggagggcgaggatattgggacgaggagacaGggaaagtgaaggccactcacagactgaccgagaga
acctgcggatcgcgctccgctactacaaccagagcgaggccggttctcacaccctccagatgatgtttggctgcga
cgtggggctcgacggcgcttctccgcggtaccaccagtagcctacgacggcaaggattacatcgccctgaaa
15 gaggacctgcgctcttgaccgcgcgacatggcggctcagatcaccaagcgcaagtgggaggcgcccatgtgg
cggagcagcAgagagCctacctggagggcaCgtgcgtggacTggctccgcagataacctggagaacgggaaggagac
gctgcagcgacgg (SEQ ID NO:128) ;

A*2424 :

gctccactccatgaggtatttctccacatccgtgtccggcccgccggggagccccgcttcatcgccgtggg
20 ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgagccagaggatggagccgcgggcgccgtgg
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gaggacctgcgctcttgaccgcgcgacatggcggctcagatcacccagcgcaagtgggaggcgcccGtgTgg
25 cggagcagtTgagagCctacctggagggcaCgtgcgtggacgggctccgcagataacctggagaacgggaaggagac
gctgcagcgacgg (SEQ ID NO:129) ;

A*2425 :

gctccactccatgaggtGtttctccacatccgtgtcccggcccgccgggagccccgcttcatcgccgtggg
 ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgagccagaggatggagccgcgggcgccgtgg
 atagagcaggaggggcccggagtattgggacgaggagacagggaaagtgaaggccactcacagactgaccgagaga
 acctgcggtatcgctccgctactacaaccagagcgaggccggttctcacaccctccagatgatgtttggctgcga
 5 cgtggggtcgacggcgcttccctccgcggtaccaccagtagcctacgacggcaaggattacatgccctgaaa
 gaggacctgcgctcttgaccgcgcgacatggcggtcagatcaccaagcgcaagtgggagggcgcccatgtgg
 cggagcagcAgagagcctacctggagggcacgtgcgtggacgggctccgcagatacctggagaacgggaaggagac
 gctgcagcgacgg (SEQ ID NO:130) ;

A*2426 :

10 aacctcctcctgctactctcgggggccctggccctgaccagacctgggcaggctccactccatgaggtatttc
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 tgcggttcgacagcgacgccgagccagaggatggagccgcgggcgccgtggatagagcaggagggccggagta
 ttgggacgaggagacagggaaagtgaaggccactcacagactgaccgagagaacctgcggtatcgctccgctac
 tacaaccagagcgaggccggttctcacaccctccagatgatgtttggctgcgacgtggggctggacggcgcttcc
 15 tccAcgggtaccaccagtagcctacgacggcaaggattacatgccctgaaagaggacctgcgctcttgaccgc
 ggccgacatggcggtcagatcaccaagcgcaagtgggagggcgcccatgtggcgagcagcagagacctacctg
 gagggcacgtgcgtggacgggctccgcagatacctggagaacgggaaggagacgtgcagcgacgg (SEQ ID
 NO:131) ;

A*2427 :

20 atggcgtcatggcgccccgaacctcgtcctgctactctcgggggccctggccctgaccagacctgggcaggct
 ccactccatgaggtatttctccacatccgtgtcccggcccgccgaggagccccgcttcatcgccgtgggcta
 cgtggacgacacgcagttcgtgcggttcgacagcgacgccgagccagaggatggagccgcgggcgccgtggata
 gagcaggaggggcccggagtattgggacgaggagacagggaaagtgaaggccactcacagactgaccgagagaacc
 tgcggtatcgctccgctactacaaccagagcgaggccggttctcacaccctccagatgatgtttggctgcgacgt
 25 ggggtcggacggcgcttccctccgcggtaccaccagtagcctacgacggcaaggattacatgccctgaaagag
 gacctgcgctcttgaccgcgcgacacGggcggtcagatcaccaagcgcaagtgggagggcgcccatgtggcgg
 agcagcagagacctacctggagggcacgtgcgtggacgggctccgcagatacctggagaacgggaaggagacgct

gcagcgcacgg (SEQ ID NO:132) ;

A*2428 :

gctccactccatgaggtatttctccacatccgtgtcccggcccggcggggagccccgcttcatcgccgtggg
 ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgcgagccagaggatggagccgcgggcgccgtgg
 5 atagagcaggaggggcccggagtattgggacgaggagacaGggaagtgaaggccactcacagactcaccgagtG
 acctggggaccctgcgcggctactacaaccagagcgaggGcggttctcacaccctccagatgatgtTtggctgcga
 cgtggggTcggacgggcgcttcctccgcgggtaccaccagTaccgctacgacggcaaggattacatcgccctgaaA
 gaggacctgcgctcttggaccgcgcgacatggcGgctcagatcaccaagcgcaagtgggagggcgcccatgtgg
 cggagcagcAgagagGctacctggagggcaGgtgcgtggacgggctccgcagatacctggagaacgggaaggagac
 10 gctgcagcgcacgg (SEQ ID NO:133) ;

A*2429 :

gctccactccatgaggtatttctccacatccgtgtcccggcccggcggggagccccgcttcatcgccgtggg
 ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgcgagccagaggatggagccgcgggcgccgtgg
 atagagcaggaggggcccggagtattgggacgaggagacacggaaagtgaaggccactcacagactgaccgagaga
 15 acctgcggatcgcgctcGgctactacaaccagagcgaggGcggttctcacaccctccagatgatgtTtggctgcga
 cgtggggTcggacgggcgcttcctccgcgggtaccaccagTaccgctacgacggcaaggattacatcgccctgaaA
 gaggacctgcgctcttggaccgcgcgacatggcGgctcagatcaccaagcgcaagtgggagggcgcccatgtgg
 cggagcagcAgagagGctacctggagggcaGgtgcgtggacgggctccgcagatacctggagaacgggaaggagac
 gctgcagcgcacgg (SEQ ID NO:134) ;

20 A*2430 :

gctccactccatgaggtatttctccacatccgtgtcccggcccggcggggagccccgcttcatcgccgtggg
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 atagagcaggaggggcccggagtattgggacgaggagacaGggaagtgaaggccactcacagactGaccgagaga
 acctgcggatcgcgctcGgctactacaaccagagcgaggGcggttctcacaccctccagatgatgtTtggctgcga
 25 cgtggggTcggacgggcgcttcctccgcgggtaccaccagTaccgctacgacggcaaggattacatcgccctgaaA
 gaggacctgcgctcttggaccgcgcgacatggcGgctcagatcaccaagcgcaagtgggagggcgcccatgtgg
 cggagcagcAgagagGctacctggagggcaGgtgcgtggacgggctccgcagatacctggagaacgggaaggagac

gctgcagcgcacgg (SEQ ID NO:135) ;

A*2431 :

gctccactccatgaggtatttctccacatccgtgtcccggcccggcggggagccccgcttcatcgccgtggg
 ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgcgagccagaggatggagccgcgggcgccgtgg
 5 atagagcaggaggggcccggagtattgggacgagGagacagggaagtgaaggccactcacagactgaccgagaga
 acctgcggatcgcgctccgctactacaaccagagcgaggccggttctcacaccctccagatgatgtttggctgcga
 cgtggggtcggacggcgcttcctccgcggtaccaccagtagcctacgacggcaaggattacatgccctgaaa
 gaggacctgcgctcttggaccgcgcgacatggcggctcagatcaccaagcgcaagtgggagggcgcccatgTgg
 cggagcagcAgagagcctacctggagggcaGgtgcgtggacgggctccgcagataacctggagaacgggaaggagac
 10 gctgcagcgcacgg (SEQ ID NO:136) ;

A*2432 :

gctccactccatgaggtatttctccacatccgtgtcccggcccggcggggagccccgcttcatcgccgtggg
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 atagagcaggaggggcccggagtattgggacgaggagacagggaagtgaaggccactcacagactgaccgagaga
 15 Gcctgcggatcgcgctccgctactacaaccagagcgaggccggttctcacaccctccagatgatgtttggctgcga
 cgtggggtcggacggcgcttcctccgcggtaccaccagtagcctacgacggcaaggattacatgccctgaaA
 gaggacctgcgctcttggaccgcgcgacatggcggctcagatcaccaagcgcaagtgggagggcgcccatgtgg
 cggagcagcAgagagcctacctggagggcaGgtgcgtggacgggctccgcagataacctggagaacgggaaggagac
 gctgcagcgcacgg (SEQ ID NO:137) ;

20 A*2433 :

gctccactccatgaggtatttctccacatccgtgtcccggcccggcggggagccccgcttcatcgccgtggg
 ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgcgagccagaggatggagccgcgggcgccgtgg
 atagagcaggaggggcccggagtattgggacgaggagacagggaagtgaaggccactcacagactgaccgagaga
 acctgcggatcgcgctccgctactacaaccagagcgaggccggttctcacaccctccagatgatgtttggctgcga
 25 cgtggggtcggacggcgcttcctccgcggtaccaccagtagcctacgacggcaaggattacatgccctgaaa
 gaggacctgcgctcttggaccgcgcgacatggcGgtcagatcaccaagcgcaagtgggagggcgcccatgTgg
 cggagcagcAgagagcctacctggagggcaGgtgcgtggagtggctccgcagataacctggagaacgggaaggagac

gctgcagcgcacggacgccccaaaacgcatatgactcaccacgctgtctctgacatgaagccaccctgaggtgc
 tgggccctgagcttctaccctgcggagatcacactgacctggcagcgggatggggaggaccagaccaggacacgg
 agctcgtggagaccaggcctgcaggggatggaaccttccagaagtgggcggtgtggtggtgccttctggacagga
 gcagagatacacctgccatgtgcagcatgagggtTtgcccaagccctcacctgagatggg (SEQ ID

5 NO:138) ;

A*2434 :

gctccactccatgaggtatttctccacatccgtgtcccggcccgccggggagccccgcttcatcgccgtggg
 ctacgtggacgacacgcagttcgtgcggttcgacagcgacgcccgagccagaggatggagccgcgccgtgg
 atagagcaggagggcgaggatattgggacgaggagacagggaaagtgaaggccactcacagaTtgaccgagaga
 10 acctgcgcatcgctccgctactacaaccagagcgaggccggttctcacaccctccagatgatgtttggctgcga
 cgtggggtcgacggcgcttctccgcggtaccaccagtagcctacgacggcaaggattacatcgccctgaaa
 gaggacctgcgctcttggaccgcgcgacatggcggtcagatcaccaagcgcaagtgggagggcccatgtgg
 cggagcagcAgagagcctacctggagggcacgtcgtggacgggctccgcagataacctggagaacgggaaggagac
 gctgcagcgcacgg (SEQ ID NO:139) ;

15 A*2435 :

gctccactccatgaggtatttctccacatccgtgtcccggcccgccggggagccccgcttcatcgccgtggg
 ctacgtggacgacacgcagttcgtgcggttcgacagcgacgcccgagccagaggatggagccgTggcgccgtgg
 atagagcaggagggcgaggatattgggacgaggagacagggaaagtgaaggccactcacagactgaccgagaga
 acctgcgcatcgctccgctactacaaccagagcgaggccggttctcacaccctccagatgatgtttggctgcga
 20 cgtggggtcgacggcgcttctccgcggtaccaccagtagcctacgacggcaaggattacatcgccctgaaa
 gaggacctgcgctcttggaccgcgcgacatggcggtcagatcaccaagcgcaagtgggagggcgcccatgtgg
 cggagcagcagagagcctacctggagggcacgtcgtggacgggctccgcagataacctggagaacgggaaggagac
 gctgcagcgcacgg (SEQ ID NO:140) ;

A*2437 :

25 gctccactccatgaggtatttctccacatccgtgtcccggcccgccggggagccccgcttcatcgccgtggg
 ctacgtggacgacacgcagttcgtgcggttcgacagcgacgcccgagccagaggatggagcTgcggcgccgtgg
 atagagcaggagggcgaggatattgggacgaggagacagggaaagtgaaggccactcacagactgaccgagaga

acctgcggatcgcgctccgctactacaaccagagcgcgagccggttctcacaccctccagatgatgtttggctgcga
cgtggggtcggacgggcgcttcctccgcgggtaccaccagtagcctacgacggcaaggattacatcgccctgaaa
gaggacctgcgctcttggaccgcggcgacatggcggctcagatcaccaagcgcaagtgggagggcgcccatgtgg
cggagcagcagagagcctacctggagggcacgtgcgtggacgggctccgcagatacctggagaacgggaaggagac
5 gctgcagcgacgg (SEQ ID NO:141) ;

A*2438 :

gctccactccatgagctatttctccacatccgtgtcccgcccgccgcggggagccccgcttcacgcccgtggg
ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgcgagccagaggatggagccgcggcgccgtgg
atagagcaggagggcgcgagtatgggacgaggagacagggaagtgaaggccactcacagactgaccgagaga
10 acctgcggatcgcgctccgctactacaaccagagcgcgagccggttctcacaccctccagatgatgtttggctgcga
cgtggggtcggacgggcgcttcctccgcgggtaccaccagtagcctacgacggcaaggattacatcgccctgaaa
gaggacctgcgctcttggaccgcggcgacatggcggctcagatcaccaagcgcaagtgggagggcgcccatgtgg
cggagcagcagagagcctacctggagggcacgtgcgtggacgggctccgcagatacctggagaacgggaaggagac
gctgcagcgacgg (SEQ ID NO:142) ;

15 A*2501 :

atggccgtcatggcgccccgaaccctcgtcctgctactctcgggggccctggccctgaccagacctggcggggt
cccactccatgaggatatttctacacctccgtgtcccgcccgccgcggggagccccgcttcacgcccgtgggcta
cgtggacgacacgcagttcgtgcggttcgacagcgacgccgcgagccagaggatggagccgcggcgccgtggata
gagcaggagggcgcgagtatgggaccggaacacacggaatgtgaaggccactcacagactgaccgagagaacc
20 tgcggatcgcgctccgctactacaaccagagcgcgaggacggttctcacaccatccagaggatgtatggctgcgacgt
ggggccggacggcgcttcctccgcgggtaccagcaggacgcttacgacggcaaggattacatcgccctgaacgag
gacctgcgctcttggaccgcggcgacatggcggctcagatcacccagcgcaagtgggagacggcccatgaggcgg
agcagtgagagcctacctggagggccggtgcgtggagtggctccgcagatacctggagaacgggaaggagacgct
gcagcgacggacgcccccaagacgcatatgactcaccacgctgtctctgacctgaggccaccctgagggtgtgg
25 gccctgagcttctaccctgcggagatcacactgacctggcagcgggatggggaggaccagaccaggacacggagc
tcgtggagaccaggcctgcaggggatggcacttcagaagtggcgctctgtggtggtgccttctggaacaggagca
gagatacactgccatgtgcagcatgagggtctgcccagcccctcaccctgagatggggag (SEQ ID

N0:143) ;

A*2502 :

atggccgtcatggcgccccgaaccctcgtcctgtactctcgggggcccctggccctgaccagacctggcggggct
 cccactccatgaggtatttctacacctccgtgtcccggcccggcggggagccccgcttcatcgccgtgggcta
 5 cgtggacgacacgcagttcgtgcggttcgacagcgacgccgcgagccagaggatggagccgcgggcgccgtggata
 gagcaggaggggccggagtttgggaccggaacacacggaatgtgaaggcccaGtcacagactgaccgagagaGcc
 tgcggatcgcgctccgctactacaaccagagcgaggacggttctcacaccatccagaggatgtatggctgcgacgt
 ggggcccggacggcgcttccctccgcggtaccagcaggacgcttacgacggcaaggattacatcgccctgaacgag
 gacctgcgctcttggaccgcggcgacatggcggtcagatcaccagcgcaagtgggagacggcccatgaggcgg
 10 agcagtggagagcctacctggagggccggtgcgtggagtggctccgcagataacctggagaacgggaaggagacgct
 gcagcgcacggacgcccccaagacgcatatgactcaccacgctgtctctgacctgaggccaccctgaggtgctgg
 gccctgagcttctacctgcggagatcacactgacctggcagcgggatggggaggaccagaccaggacacggagc
 tcgtggagaccaggcctgcaggggatggGaccttcagaagtggcgctctgtggtggtgccttctggaGaggagca
 gagataacctgccatgtgcagcatgagggtctgcccagcccctcaccctgagatggggag (SEQ ID

15 N0:144) ;

A*2503 :

gctccactccatgaggtatttcttccatccgtgtcccggcccggcggggagccccgcttcatcgccgtggg
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 atagagcaggaggggccggagtttgggaccggaacacacggaatgtgaaggccactcacagactgaccgagaga
 20 Gcctgcggatcgcgctccgctactacaaccagagcgaggacggttctcacaccatccagaggatgtatggctgcga
 cgtggggccggacggcgcttccctccgcggtaccagcaggacgcttacgacggcaaggattacatcgccctgaac
 gaggacctgcgctcttggaccgcggcgacatggcggtcagatcaccagcgcaagtgggagAcggcccatgAgg
 cggagcagTggagagcctacctggagggccggtgcgtggagTggctccgcagataacctggagaacgggaaggagac
 gctgcagcgacgg (SEQ ID N0:145) ;

25 A*2504 :

gctccactccatgaggtatttctacacctccgtgtcccggcccggcggggagccccgcttcatcgccgtggg
 ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgcgagccagaggatggagccgcgggcgccgtgg

atagagcaggagggcgaggatattgggaccggaacacacggaatgtgaaggccactcacagactgaccgagaga
 Gcctgcggatcgcgctccgctactacaaccagagcgaggacggttctcacaccatccagaggatgtatggctgcga
 cgtggggccggacggcgcttcctccgcggtaccagcaggacgcttacgacggcaaggattacatcgccctgaac
 gaggacctgcgctcttggaccgcgcgacatggcggctcagatcaccagcgcaagtgggagacggcccatgAgg
 5 cggagcagcAgagagcctacctggaggcgcggtgcgtggagTggctccgcagatacctggagaacgggaaggagac
 gctgcagcgcacgg (SEQ ID NO:146) ;

A*2601 :

atggccgtcatggcgccccgaaccctcgtcctgctactctcgggggccctggccctgaccagacctggcggggt
 ccactccatgaggtatttctacacctccgtgtcccgccccggcgcggggagccccgcttcacgctgggcta
 10 cgtggacgacacgcagttcgtgcggttcgacagcgacgcccgcagccagaggatggagccgcggcgccgtggata
 gagcaggagggggcgaggatattgggaccggaaCacacggaatgtgaaggccactcacagactgaccgagcgaacc
 tggggaccctgcgcggtactacaaccagagcgaggacggttctcacaccatccagaggatgtatggctgcgacgt
 ggggcccggacggcgcttcctccgcggtaccagcaggacgcttacgacggcaaggattacatcgccctgaacgag
 gacctgcgctcttggaccgcgcgacatggcggctcagatcaccagcgcaagtgggagacggcccatgaggcgg
 15 agcagTggagagcctacctggaggcgcggtgcgtggagtggctccgcagatacctggagaacgggaaggagacgct
 gcagcgcacggacggccccaagacgcatatgactcaccacgctgtctctgacctgaggccaccctgagggtctgg
 gccctgagcttctaccctgcggagatcacactgacctggcagcgggatggggaggaccagaccaggacacggagc
 tcgtggagaccaggcctgcaggggatggGaccttcagaagtggcgctctgtggtggtgccttctggacaggagca
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 20 NO:147) ;

A*2602 :

atggccgtcatggcgccccgaaccctcgtcctgctactctcgggggccctggccctgaccagacctggcggggt
 ccactccatgaggtatttctacacctccgtgtcccgccccggcgcggggagccccgcttcacgctgggcta
 cgtggacgacacgcagttcgtgcggttcgacagcgacgcccgcagccagaggatggagccgcggcgccgtggata
 25 gagcaggagggggcgaggatattgggaccggaacacacggaatgtgaaggccactcacagactgaccgagcgaacc
 tggggaccctgcgcggtactacaaccagagcgaggacggttctcacaccatccagaggatgtatggctgcgacgt
 ggggcccggacggcgcttcctccgcggtaccagcagAacgcttacgacggcaaggattacatcgccctgaacgag

gacctgcgctcttggaccgcgcgacatggcggctcagatcaccagcgcaagtgggagacggcccatgaggcgg
 agcagtggagagcctacctggaggcgccggtgcgtggagtggctccgcagataacctggagaacgggaaggagacgct
 gcagcgcacggacgcccccaagacgcatatgactcaccacgctgtctctgacctgaggccaccctgaggtgctgg
 gccctgagcttctacctgcggagatcacactgacctggcagcgggatggggaggaccagaccaggacacggagc
 5 tcgtggagaccaggcctgcaggggatgggaccttcagaagtggcgtctgtggtggtgccttctggacaggagca
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 NO:148) ;

A*2603 :

atggcgtcatggcgccccgaaccctcgtcctgctactctcgggggccctggccctgaccagacctgggcgggct
 10 cccactccatgaggtatttctacacctccgtgtcccgcccgccgcggggagccccgcttcatcgccgtgggcta
 cgtggacgacacgcagttcgtgcggttcgacagcgacgccgcgagccagaggatggagccgcgggcgccgtggata
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 ggggccggacggcgcttccctccgcgggtaccagcaggacgcttacgacggcaaggattacatcgccctgaacgag
 15 gacctgcgctcttggaccgcgcgacatggcggctcagatcaccagcgcaagtgggagacggcccatgaggcgg
 agcagTggagagcctacctggaggcgccggtgcgtggagtggctccgcagataacctggagaacgggaaggagacgct
 gcagcgcacggacgcccccaagacgcatatgactcaccacgctgtctctgacctgaggccaccctgaggtgctgg
 gccctgagcttctacctgcggagatcacactgacctggcagcgggatggggaggaccagaccaggacacggagc
 tcgtggagaccaggcctgcaggggatggGaccttcagaagtggcgtctgtggtggtgccttctggacaggagca
 20 gagatacacctgcatgtgcagcatgagggtctgccaagcccctcacctgagatgggag (SEQ ID
 NO:149) ;

A*2604 :

atggcgtcatggcgccccgaaccctcgtcctgctactctcgggggccctggccctgaccagacctgggcgggct
 cccactccatgaggtatttctacacctccgtgtcccgcccgccgcggggagccccgcttcatcgccgtgggcta
 25 cgtggacgacacgcagttcgtgcggttcgacagcgacgccgcgagccagaggatggagccgcgggcgccgtggata
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 agcagtggagagcctacctggagggccTgtgcgtggagtggctccgcagataacctggagaacgggaaggagacgct
 gcagcgcacggacgcccccaagacgcatatgactcaccacgctgtctctgaccatgaggccaccctgaggtgctgg
 5 gccctgagcttctaccctgcggagatcacactgacctggcagcgggatggggaggaccagaccaggacacggagc
 tcgtggagaccaggcctgcaggggatgggaccttcagaagtggcgctctgtggtggtgccttctggacaggagca
 gagatacacctgccatgtgcagcatgagggtctgcccaagcccctcacctgagatgggag (SEQ ID
 NO:150) ;
 A*2605 :
 10 atggccgtcatggcgccccgaacctcgtcctgtactctcgggggccctggccctgaccagacctggcggggt
 cccactccatgaggtatttctacacctccgtgtcccgcccgccgcggggagccccgcttcatcgccgtgggcta
 cgtggacgacacgcagttcgtgcggttcgacagcgacgcgcgagccagaggatggagccgcggcgccgtggata
 gagcaggagggggcgagtatgggaccggaacacacggaatgtgaaggccactcacagactgaccgagAgaacc
 tggggaccctgcgcggtactacaaccagagcgaggacggttctcacaccatccagaggatgtatggctgcgacgt
 15 ggggccggacggcgcttctccgcggtaccagcaggacgcttacgacggcaaggattacatcgccctgaacgag
 gacctgcgctcttgaccgcggcgacatggcggtcagatcaccagcgcaagtgggagacggcccatgaggcgg
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 gcagcgcacggacgcccccaagacgcatatgactcaccacgctgtctctgaccatgaggccaccctgaggtgctgg
 gccctgagcttctaccctgcggagatcacactgacctggcagcgggatggggaggaccagaccaggacacggagc
 20 tcgtggagaccaggcctgcaggggatggGaccttcagaagtggcgctctgtggtggtgccttctggacaggagca
 gagatacacctgccatgtgcagcatgagggtctgcccaagcccctcacctgagatgggag (SEQ ID
 NO:151) ;
 A*2606 :
 gctccactccatgaggtatttctacacctccgtgtcccgcccgccgcggggagccccgcttcatcgccgtggg
 25 ctacgtggacgacacgcagttcgtgcggttcgacagcgacgcgcgagccagaggatggagccgcggcgccgtgg
 atagagcaggagggcgagtatgggaccggaacacacggaatgtgaaggccactcacagactcaccgagtg
 acctggggaccctgcgcggtactacaaccagagcgaggacggttctcacaccatccagaggatgtatggctgcga

cgtggggcggacgggcgcttcctccgcggtaccagcGggacgcttacgacggcaaggattacatcgccctgaac
gaggacctgcgctcttggaccgcgcgacatggcggctcagatcaccagcgcaagtgggagacggcccatgagg
cggagcagtgagagcctacctggagggccggtgcgtggagtggctccgcagatacctggagaacgggaaggagac
gctgcagcgcacgg (SEQ ID NO:152) ;

5 A*2607 :

atggccgtcatggcgccccgaaccctcgtcctgtactctcgggggccctggccctgaccagacctgggcgggct
cccactccatgaggtatttctacacctccgtgtcccgcccgccgcggggagccccgcttcatcgccgtgggcta
cgtggacgacacgcagttcgtgcggttcgacagcgacgccgcgagccagaggatggagccgcgggcgccgtggata
gagcaggagggggccggagtattgggacggggagacacggaaAgtgaaggccactcacagactgaccgagcgaacc
10 tggggaccctgcgcggtactacaaccagagcgaggacggttctcacaccatccagaggatgtatggctgcgacgt
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gacctgcgctcttggaccgcgcgacatggcggctcagatcaccagcgcaagtgggagacggcccatgaggcgg
agcagTggagagcctacctggagggccggtgcgtggagtggctccgcagatacctggagaacgggaaggagacgct
gcagcgacggacgcccccaagacgcataatgactcaccacgctgtctctgacctgaggccaccctgaggtgctgg
15 gccctgagcttctacctgcggagatcacactgacctggcagcgggatggggaggaccagaccaggacacggagc
tcgtggagaccaggcctgcaggggatggGaccttcagaagtgggcgtctgtggtggtgccttctggacaggagca
gagatacacctgccatgtgcagcatgaggggtctgcccagccccctaccctgagatgggag (SEQ ID
NO:153) ;

A*2608 :

20 atggccgtcatggcgccccgaaccctcgtcctgtactctcgggggccctggccctgaccagacctgggcgggct
cccactccatgaggtatttctacacctccgtgtcccgcccgccgcggggagccccgcttcatcgccgtgggcta
cgtggacgacacgcagttcgtgcggttcgacagcgacgccgcgagccagaggatggagccgcgggcgccgtggata
gagcaggagggggccggagtattgggaccggaacacacggaatgtgaaggccactcacagactgaccgagcgaacc
tggggaccctgcgcggtactacaaccagagcgaggacggttctcacaccatccagaggatgtatggctgcgacgt
25 ggggcccggacgggcgcttcctccgcggtaccagcaggacgcttacgacggcaaggattacatcgccctgaacgag
gacctgcgctcttggaccgcgcgacatggcggctcagatcaccagcgcaagtgggagacggcccatgaggcgg
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gcagcgacggacgcccccaagacgcatatgactcaccacgctgtctctgaccatgaggccaccctgaggtgctgg
 gccctgagcttctaccctgcggagatcacactgacctggcagcgggatggggaggaccagaccaggacacggagc
 tcgtggagaccaggcctgcaggggatggGaccttocagaagtgggogtctgtggtggtgccttctggacaggagca
 gagatacacctgccatgtgcagcatgaggggtctgcccagccccctaccctgagatgggag (SEQ ID

5 NO:154) ;

A*2609 :

gctccactccatgaggtatttctacacctccgtgtcccggcccgccggggagccccgcttcatcgccgtggg
 ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgcgagccagaggatggagccgcgccgctgg
 atagagcaggaggggcccggagtattgggaccggaacacacggaatgtgaaggccactcacagactgaccgagcga
 10 acctggggaccctgcgcggtactacaaccagagcgaggacgggttctcacaccatccagaggatgtatggctgcga
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 gaggacctgcgctcttggaccgcgccggacatggcggtcagatcaccGagcgcaagtgggagAcggcccatgAgg
 cggagcagtggagagcctacctggagggcaGtgcgtggagtggctccgcagataacctggagaacgggaaggagac
 gctgcagcgacgg (SEQ ID NO:155) ;

15 A*2610 :

gctccactccatgaggtatttctacacctccgtgtcccggcccgccggggagccccgcttcatcgccgtggg
 ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgcgagccagaggatggagccgcgccgctgg
 atagagcaggaggggcccggagtattgggaccggaacacacggaatgtgaaggccactcacagactgaccgagcga
 acctggggaccctgcgcggtactacaaccagagcgaggacgggttctcacaccatccagaggatgtatggctgcga
 20 cgtggggccggacggcgcttcctccgcggtaccagcaggacgcttacgacggcaaggattacatcgccctgaaA
 gaggacctgcgctcttggaccgcgccggacatggcggtcagatcaccGagcgcaagtgggagAcggcccatgAgg
 cggagcagTggagagcctacctggagggccggtgcgtggagtggctccgcagataacctggagaacgggaaggagac
 gctgcagcgacgg (SEQ ID NO:156) ;

A*2612 :

25 gctccactccatgaggtatttctacacctccgtgtcccggcccgccggggagccccgcttcatcgccgtggg
 ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgcgagccagaggatggagccgcgccgctgg
 atagagcaggaggggcccggagtattgggaccggaacacacggaatgtgaaggccactcacagactgaccgagcga

acctggggaccctgcgcggctactacaaccagagcgcgaggacgggttctcacaccatccagaggatgtatggctgcga
cgtggggccggacgggcgcttcctccgcgggtaccagcaggacgcttacgacggcaaggattacatcgccctgaac
gaggacctgcgctcttggaccgcggcgacatggcggctcagatcaccCagcgcaagtgggagAcggcccatgTgg
cggagcagTggagagcctacctggagggccggtgcgtggagtggctccgcagatacctggagaacgggaaggagac
5 gctgcagcgacgg (SEQ ID NO:157) ;

A*2613 :

gctccactccatgaggtatttctacacctccgtgtcccggcccgccggggagccccgcttcacgcccgtggg
ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgcgagccagaggatggagccgcggcgccgtgg
atagagcaggaggggcccggagtattgggaccggaacacacggaatgtgaaggcccaGtcacagactgaccgagcga
10 acctggggaccctgcgcggctactacaaccagagcgcgaggacgggttctcacaccatccagaggatgtatggctgcga
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gaggacctgcgctcttggaccgcggcgacatggcggctcagatcaccCagcgcaagtgggagAcggcccatgAgg
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15 A*2614 :

gctccactccatgaggtatttctacacCtccgtgtcccggcccgccggggagccccgcttcacgcccgtggg
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20 cgtggggccggacgggcgcttcctccgcgggtaccAgcaggacgcTtacgacggcaaggattacatcgccctgaac
gaggacctgcgctcttggaccgcggcgacatggcggctcagatcaccagcgcaagtgggaggcgcccatgAgg
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gctgcagcgacgg (SEQ ID NO:159) ;

A*2615 :

25 atggccgtcatggcgccccgaacctcgtcctgtactctcgggggccctggccctgaccagacctggcggggt
ccactccatgaggtatttctacacctccgtgtcccggcccgccggggagccccgcttcacgcccgtgggcta
cgtggacgacacgcagttcgtgcggttGgacagcgacgccgcgagccagaggatggagccgcggcgccgtggata

gagcaggaggggcccggagtagttgggaccggaacacacggaatgtgaaggcccactcacagactgaccgagcgaacc
 tggggaccctgcgcggctactacaaccagagcgaggacggttctcacaccatccagaggatgtatggctgcgacgt
 ggggcccggacgggcgcttcctccgcggtaccagcaggacgcttacgacggcaaggattacatcgccctgaacgag
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 5 agcagtgagagcctacctggagggccggtgcgtggagtggctccgcagatacctggagaacgggaaggagacgct
 gcagcgcacggacgcccccaagacgcatatgactcaccacgctgtctctgaccatgaggccaccctgaggtgctgg
 gccctgagcttctaccctgcggagatcacactgacctggcagcgggatggggaggaccagaccaggacacggagc
 tcgtggagaccaggcctgcaggggatgggaccttcagaagtggcgctctgtggtggtgccttctggacaggagca
 gagatacacctgccatgtgcagcatgagggtctgcccaagcccctcaccctgagatgggag (SEQ ID
 10 N0:160) ;
 A*2616 :
 gctcccactccatgaggtatttctccacatccgtgtcccggcccggccgaggagccccgcttcatcgccgtggg
 ctacgtggacgacacgcagttcgtgcggttcgacagcgacgcccgcagccagaggatggagccgcccgcgcccgtgg
 atagagcaggaggggcccggagtagttgggaccggaacacacggaatgtgaaggcccactcacagactgaccgagcga
 15 acctggggaccctgcgcggctactacaaccagagcgaggacggttctcacaccatccagaggatgtatggctgcga
 cgtggggcccggacgggcgcttcctccgcggtaccAgcaggacgcttacgacggcaaggattacatcgccctgaac
 gaggacctgcgctcttggaccgcggcgacatggcggtcagatcaccGagcgcaagtgggagAcggcccatgAgg
 cggagcagTggagagcctacctggagggccggtgcgtggagtggctccgcagatacctggagaacgggaaggagac
 gctgcagcgcacgg (SEQ ID N0:161) ;
 20 A*2617 :
 gctcccactccatgaggtatttctacacctccgtgtcccggcccggccgaggagccccgcttcatcgccgtggg
 ctacgtggacgacacgcagttcgtgcggttcgacagcgacgcccgcagccagaggatggagccgcccgcgcccgtgg
 atagagcaggaggggcccggagtagttgggaccggaacacacggaatgtgaaggcccactcacagactgaccgagcga
 acctggggaccctgcgcggctactacaaccagagcgaggacggtActcacaccatccagaggatgtatggctgcga
 25 cgtggggcccggacgggcgcttcctccgcggtaccagcaggacgcttacgacggcaaggattacatcgccctgaac
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A*2618 :

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A*29010101 :

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NO:164) ;

25 A*2902 :

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 A*2903 :
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 25 NO:166) ;
 A*2904 :
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A*2905 :

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A*2906 :

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 20 atagagcaggaggggcccggagtattgggacctgcagacacggaatgtgaaggcccagtcacagactgaccgagcga
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A*2907 :

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A*3001 :

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A*3002 :

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NO:172) ;

A*3003 :

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A*3004 :

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A*3006 :

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A*3007 :

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A*3008 :

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 NO:177) ;

A*3009 :

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A*3010 :

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NO:179) ;

A*3011 :

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A*3012 :

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NO:181) ;

25 A*310102 :

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 A*3102 :
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A*3104 :

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A*3105 :

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A*3106 :

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A*3107 :

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A*3108 :

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A*3109 :

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A*3201 :

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A*3202 :

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A*3203 :

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A*3204 :

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A*3205 :

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 A*3206 :
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 A*3207 :
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5 A*3301 :

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NO:198) ;

A*3303 :

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A*3304 :

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15 A*3305 :

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A*3306 :

25 gctccactccatgaggtatttcaccacatccgtgtcccggcccggcggggagccccgcttcacgcgctggg
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A*3401 :

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A*3402 :

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A*3403 :

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A*3404 :

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 5 tggggaccctgcgcggctactacaaccagagcgaggccggttctcacaccatccagatgatgtatggctgcgacgt
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 A*6809 :
 15 gctccactccatgaggtattttctacacTtccgtgtcccggcccggccgaggagccccgcttcatcgccgtggg
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 A*6810 :
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 25 ctacgtggacgacacgcagttcgtgcggttcgacagcgacgcccgcgagccagaggatggagccgaggcgccgtgg
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5 A*6812 :

accctcgtcctgtactctcgggggccctggccctgaccagacctgggcgggctcccactccatgaggtatttct
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A*6813 :

15 atggccgtcatggcgccccgaaccctcgtcctgtactctcgggggccctggccctgaccagacctgggcgggct
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A*6814 :

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 5 cgtggggTcgagcggcgcttcctccgcggtaccggcaggacgcctacgacggcaaggattacatcgccctgaaa
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A*6815 :

10 gctccactccatgaggtatttctacacctccAtgtcccgcccgccgaggagccccgcttcatcgccgtggg
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 acctggggaccctgcgcggctactacaaccagagcgaggccggttctcacaccatccagaggatgtatggctgcga
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A*6816 :

ccgtcatggcggccgaacctcgtcctgctactctcgggggccctggccctgaccagacctggcgggctccca
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 tcggacggcgcttcctccgcggtaccggcaggacgcctacgacggcaaggattacatcgccctgaaaggagacc
 25 tgcgctcttggaccgcgcgacatggcagctcagaccaccaagcacaagtgggagggcgccTtgtggcggagca
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A*6817 :

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 10 gcagcgcacggacccccaaaacgcatatgactcaccacgctgtctctgaccatgaagccaccctgaggtgctgg
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 NO:234) ;

15 A*6819 :

gctccactccatgaggtatttctacacttccgtgtcccggcccgccggggagccccgcttcatcgccgtggg
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A*6820 :

25 gctccactccatgaggtatttctacacttccgtgtcccggcccgccggggagccccgcttcatcgccgtggg
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 5 gctgcagcgacgg (SEQ ID NO:236) ;

A*6821 :

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 10 acctggggaccctgcgcggctactacaaccagagcgcgagccggttctcacaccatccagatgatgtatggctgcga
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15 A*6822 :

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 25 gccctgagcttctaccctgcggagatcacactgacctggcagcgggatggggaggaccagaccaggacacggagc
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N0:238) ;

A*6823 :

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5 atagagcaggagggccggagtattgggaccggaacacacggaatgtgaaggcccagtcacagactgaccgagtgg
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10 gctgcagcgcacgg (SEQ ID N0:239) ;

A*6901 :

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tcgtggagaccaggcctgcaggggatggaaccttcagaaagtggcgcgctgtggtggtgccttctggacaggagca
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N0:240) ;

25 A*7401 :

atggccgtcatggcgccccgaaccctcctcctgtactcttggggggccctggccctgaccagaccAgggcggggct
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 5 gacctgcgctcttggaccgcggcgacatggcggtcagatcacccagcgcaagtgggaggcgcccggtgtggcgg
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 ttgtggagaccaggcctgcaggggatggaaccttcagaagtggcgctctgtggtggtgccttctggaGaggagca
 10 gagatacacctgccatgtgcagcatgagggctctgcccaagcccctcacctgagatgggag (SEQ ID
 NO:241) ;

A*7402 :

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 15 cgtggacgacacgcagttcgtgcggtttgacagcgacgccgcgagccagaggatggagccgcgggcgccgtggata
 gagcaggagggcgccgagtagttgggaccaggagacacggaatgtgaaggccactcacagactgaccgagtGacc
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 20 agcagtTgagagcctacctggagggcacgtgcgtggagTggctccgcagatacctggagaacgggaaggagacgct
 gcagcgcacgg (SEQ ID NO:242) ;

A*7403 :

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 25 cgtggacgacacgcagttcgtgcggtttgacagcgacgccgcgagccagaggatggagccgcgggcgccgtggata
 gagcaggagggcgccgagtagttgggaccaggagacacggaatgtgaaggccactcacagactgaccgagtggacc
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agcagttgagagcctacctggagggcacgtgcgtggagtggctccgcagatacctggagaacgggaaggagacgct
gcagcgacgg (SEQ ID NO:243) ;

5 A*7404 :

ggctcccactccatgaggtatttcttcacatccgtgtcccggcccgccgcggggagccccgcttcacgccgtgg
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Gacctggggaccctgcgcggctactacaaccagagcgaggccggttctcacaccatccagatgatgtatggctgcg
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gcggagcagtTgagagcctacctggagggcacgtgcgtggagtggctccgcagatacctggagaacgggaaggaga
cgctgcagcgacgg (SEQ ID NO:244) ;

A*7405 :

15 gctcccactccatgaggtatttcttcacatccgtgtcccggcccgccgcggggagccccgcttcacgcccgtggg
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cggagcagttgagagcctacctggagggcacgtgcgtggagtggctccgcagatacctggagaacgggaaggagac
gctgcagcgacgg (SEQ ID NO:245) ;

A*7406 :

25 gctcccactccatgaggtatttcttcacatccgtgtcccggcccgccgcggggagccccgcttcacgcccgtggg
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5 A*7407 :

gctccactccatgaggtatttcttcacatccgtgtcccggcccggccgaggagccccgcttcatcgccgtggg
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10 cgtggggccggacgggcgcCtcctccgcgggtaccagcaggacgcctacgacggcaaggattacatcgcccttgaac
gaggacctgcgctcttggaccgcggcgacatggcggctcagatcaccagcgcaagtgggaggcgcccGtgtgg
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gctgcagcgcacgg (SEQ ID NO:247) ;

A*7408 :

15 gctccactccatgaggtatttcttcacatccgtgtcccggcccggccgaggagccccgcttcatcgccgtggg
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acctggggaccctgcgcggctactacaaccagagcgaggccggttctcacaccatccagatgatgtatggctgcga
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20 gaggacctgcgctcttggaccgcggcgacatggcggctcagatcaccagcgcaagtgggaggcgcccAgtgtgg
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A*7409 :

gctccactccatgaggtatttcttcacatccgtgtcccGccccggccgaggagccccgcttcatcgccgtggg
25 ctacgtggacgacacgcagttcgtgcggtttgacagcgacgccgcgagccagaggatggagccggcgccgtgg
atagagcaggagggccggagtattgggaccaggagacacggaatgtgaaggccactcacagactgaccgagtgg
acctggggaccctgcgcggctactacaaccagagcgaggccggttctcacaccatccagatgatgtatggctgcga

cgtggggcggacgggcgcctcctccgcggtaccagcaggacgcctacgacggcaaggattacatcgccctgaac
 gaggacctgcgctcttggaccgcgcgacatggcggctcagatcacccagcgcaagtgggaggcgcccgtgtgg
 cggagcagttgagagcctacctggagggcacgtgcgtggagtggctccgcagatacctggagaacgggaaggagac
 gctgcagcgcacgg (SEQ ID NO:249) ;

5 A*8001 :

Atggccgtcatgccgcccgaaccctcctcctgctactctcgggggccctggccctgaccagacctgggcaggct
 cccactccatgaggtatttcttcacatccgtgtcccgcccgccgcggggagccccgcttcatcgagtgggcta
 cgtggacgactcgcagttcgtgcagttcgacagcgacgccgcgagccagaggatggagccgcgggcgccgtggata
 gagcaggaggagccggagtattgggacgaggagacacggaatgtgaaggccactcacagactaaccgagcgaacc
 10 tggggaccctgcgcggtactacaaccagagcgaggacggttctcacaccatccagataatgtatggctgcgacgt
 ggggtcggacggcgcttcctccgcggtaccggcaggacgcctacgacggcaaggattacatcgccctgaacgag
 gacctgcgctcttggaccgcgcgacatggcggctcagatcaccaagcgcaagtgggaggcgcccgtcggcgcg
 agcagctgagagcctacctggagggcgagtgcgtggacgggctccgcagatacctggagaacgggaaggagacgt
 gcagcgacggaccccccaagacacatatgaccaccacccatctctgacctgaggccactctgaggtgctgg
 15 gccctgagcttctacctgcggagatcacactgacctggcagcgggatggggaggaccagaccaggacacggagc
 tcgtggagaccaggcctgcaggggatggaaccttcagaagtggcgcgctgtggtggtaccttctgaaaggagaa
 gagatacacctgccatgtgcagcatgagggctctgccGagcccctcacctgagatggggag
 (SEQ ID NO:25) ;

20

The probe list A1 is shown in Tables 1-1 to 1-7
 and the probe list A2 is shown in Tables 2-1 to 2-6.
 The allele-probe lists are shown in Tables 3-1 to 3-9
 and Tables 4-1 to 4-9.

25

Table 1-1

Probe No.	Base Sequence
0	g ccc cgc ttc atc gcC (SEQ ID No: 2 5 1)
1	gac cag gag aca cgg aat A (SEQ ID No: 2 5 2)
2	gcg gag cag cgg aga gT (SEQ ID No: 2 5 3)
3	a gtc tac ctg gag ggc C (SEQ ID No: 2 5 4)
4	gtc tac ctg gag ggc cG (SEQ ID No: 2 5 5)
5	agg tgc tgg gcc ctg G (SEQ ID No: 2 5 6)
6	g gtg gtg cct tct gga G (SEQ ID No: 2 5 7)
7	c acc ctg aga tgg gag cT (SEQ ID No: 2 5 8)
8	cc ctg aga tgg gag ctG (SEQ ID No: 2 5 9)
9	g gac atg gca gct cag atT (SEQ ID No: 2 6 0)
10	cac tcc atg agg tat ttc tC (SEQ ID No: 2 6 1)
11	c cgg ccc ggc agt ggA (SEQ ID No: 2 6 2)
12	t tct cac acc atc cag atG (SEQ ID No: 2 6 3)
13	c cat gcg gcg gag cag T (SEQ ID No: 2 6 4)
14	cat gcg gcg gag cag tT (SEQ ID No: 2 6 5)
15	ata gag cag gag agg ccT (SEQ ID No: 2 6 6)
16	c tca cag act gac cga gA (SEQ ID No: 2 6 7)
17	c tac aac cag agc gag gC (SEQ ID No: 2 6 8)
18	ga gtc tac ctg gag ggc T (SEQ ID No: 2 6 9)
19	gtg gac gac acg cag ttA (SEQ ID No: 2 7 0)
20	tg cta ctc tcg ggg gcT (SEQ ID No: 2 7 1)
21	g gcc cac tca cag act C (SEQ ID No: 2 7 2)
22	g gcc ggt tct cac acc G (SEQ ID No: 2 7 3)
23	t tct cac acc gtc cag aG (SEQ ID No: 2 7 4)
24	c gac gtg ggg tcg gac T (SEQ ID No: 2 7 5)
25	gg gag gcg gcc cat gT (SEQ ID No: 2 7 6)
26	c cat gtg gcg gag cag tT (SEQ ID No: 2 7 7)
27	gcc tac ctg gag ggc aC (SEQ ID No: 2 7 8)
28	ga gct gtg gtc gct gcT (SEQ ID No: 2 7 9)
29	ag ccc cgc ttc atc gcA (SEQ ID No: 2 8 0)
30	ccg gag tat tgg gac gG (SEQ ID No: 2 8 1)

Table 1-2

Probe No.	Base Sequence
31	ggc ttg cat tcc ctc cG (SEQ ID No :32)
32	c cca gtt ggg acg agt gT (SEQ ID No :33)
33	ct gct gct gct gct gcT (SEQ ID No :34)
34	a gaa gat gtc ctg gga aaC (SEQ ID No :35)
35	t gtg cag tca ggg ttt ctT (SEQ ID No :36)
36	gcc tca gag ggc aac atC (SEQ ID No :37)
37	ct gct gct gct gct gcT (SEQ ID No :38)
38	ttc tat ccc cgg aat atc aT (SEQ ID No :39)
39	gtt gct gct gct gct gcT (SEQ ID No :40)
40	cag acc ttg gcc atg aac A (SEQ ID No :41)
41	gg aat cac agc act cac G (SEQ ID No :42)
42	a cgg cga tat cta aaa tcc A (SEQ ID No :43)
43	ctc tcc caa aac ctg gag T (SEQ ID No :44)
44	ttc ttg aag gaa gat gcc G (SEQ ID No :45)
45	cat gaa gac aac agc acc aA (SEQ ID No :46)
46	ggg ttt ctc gct gag gG (SEQ ID No :47)
47	caa gga gag gag cag agT (SEQ ID No :48)
48	g gcc acc agg att tgc G (SEQ ID No :49)
49	c agg gct tct ggc ttc tG (SEQ ID No :50)
50	ag aaa aca tca gct gca gaT (SEQ ID No :51)
51	at caa cac cca gtt ggg aT (SEQ ID No :52)

Table 1-3

Probe No.	Base Sequence
61	ca cag act cac cga gtg G (SEQ ID No: 3 1 2)
62	c gcg gcg gac atg gcG (SEQ ID No: 3 1 3)
63	gt ccg gag tat tgg gac G (SEQ ID No: 3 1 4)
64	ac ggg gag aca cgg aaC (SEQ ID No: 3 1 5)
65	ca gtg ggc tac gtg gac A (SEQ ID No: 3 1 6)
66	tgg gag acg gcc cat gT (SEQ ID No: 3 1 7)
67	c cat gag gcg gag cag tT (SEQ ID No: 3 1 8)
68	a gct cag acc acc aag cA (SEQ ID No: 3 1 9)
69	cat gcg gcg gag cag cA (SEQ ID No: 3 2 0)
70	cg tgg ata gag cag gag A (SEQ ID No: 3 2 1)
71	gac ggg gag aca cgg C (SEQ ID No: 3 2 2)
72	c tgg gcg ggc tct caG (SEQ ID No: 3 2 3)
73	tc gac agc gac gcc gG (SEQ ID No: 3 2 4)
74	c acc gtc cag agg atg tC (SEQ ID No: 3 2 5)
75	cgg aaa gtg aag gcc caG (SEQ ID No: 3 2 6)
76	g gcc cag tca cag act C (SEQ ID No: 3 2 7)
77	g gct cag atc acc aag cA (SEQ ID No: 3 2 8)
78	gcg gag cag tlg aga gC (SEQ ID No: 3 2 9)
79	g ggc acg tgc gtg gaG (SEQ ID No: 3 3 0)
80	g tgg gag gcg gcc cG (SEQ ID No: 3 3 1)
81	gg gag gcg gcc cgt gT (SEQ ID No: 3 3 2)
82	c cgc ggg tac cag cag T (SEQ ID No: 3 3 3)
83	g gag ccc cgc ttc atc T (SEQ ID No: 3 3 4)
84	gac cag gag aca cgg aaA (SEQ ID No: 3 3 5)
85	at tgg gac gag gag aca G (SEQ ID No: 3 3 6)
86	gac gag gag aca ggg aaA (SEQ ID No: 3 3 7)
87	g aag gcc cac tca cag aG (SEQ ID No: 3 3 8)
88	g agg tat ttc ttc aca tcc A (SEQ ID No: 3 3 9)
89	ttc ctc cgc ggg tat gaA (SEQ ID No: 3 4 0)
90	gag tat tgg gac cgg aaC (SEQ ID No: 3 4 1)

Table 1-4

Probe No.	Base Sequence
91	cgg aat gtg aag gcc caG (SEQ ID No: 3 4 2)
92	g gcc ggt tct cac acc C (SEQ ID No: 3 4 3)
93	t tct cac acc ctc cag aG (SEQ ID No: 3 4 4)
94	c cgg ccc ggc cgc gA (SEQ ID No: 3 4 5)
95	cgc ggg tac cac cag iT (SEQ ID No: 3 4 6)
96	ca cag act gac cga gtg G (SEQ ID No: 3 4 7)
97	g ttg aga gcc tac ctg gaT (SEQ ID No: 3 4 8)
98	cat gag gcg gag cag cT (SEQ ID No: 3 4 9)
99	ctg aga gcc tac ctg gaT (SEQ ID No: 3 5 0)
100	tgg ata gag cag gag ggT (SEQ ID No: 3 5 1)
101	cag aga gcc tac ctg gaT (SEQ ID No: 3 5 2)
102	ggc ctg gtt ctc ctt gC (SEQ ID No: 3 5 3)
103	g aga gcc tac ctg gat gC (SEQ ID No: 3 5 4)
104	ggc tgc gac gtg ggg T (SEQ ID No: 3 5 5)
105	g ggc cgg tgc gtg gaG (SEQ ID No: 3 5 6)
106	ggc cgg tgc gtg gag T (SEQ ID No: 3 5 7)
107	gc tct tgg acc gcg gcA (SEQ ID No: 3 5 8)
108	gg ccc ggc cgc ggg A (SEQ ID No: 3 5 9)
109	gg gag gcg gcc cgt gA (SEQ ID No: 3 6 0)
110	cgt gag gcg gag cag cA (SEQ ID No: 3 6 1)
111	g gca gct cag atc acc G (SEQ ID No: 3 6 2)
112	g ccg gac ggg cgc ttA (SEQ ID No: 3 6 3)
113	g cag aga gcc tac ctg C (SEQ ID No: 3 6 4)
114	g ccg gag tat tgg gac cT (SEQ ID No: 3 6 5)
115	g gca gct cag atc acc aG (SEQ ID No: 3 6 6)
116	g gag gcg gcc cgt cG (SEQ ID No: 3 6 7)
117	ac gag gag aca ggg aaa G (SEQ ID No: 3 6 8)
118	cc cag ccc acc gtc cA (SEQ ID No: 3 6 9)
119	c cgt gtg gcg gag cag T (SEQ ID No: 3 7 0)
120	gcg gag cag tgg aga gC (SEQ ID No: 3 7 1)

Table 1-5

Probe No.	Base Sequence
121	ggc aag gat tac atc gcc T (SEQ ID No: 372)
122	cgt gtg gcg gag cag tT (SEQ ID No: 373)
123	c tcc cac tcc atg agg tG (SEQ ID No: 374)
124	cg ctc cgc tac tac aac G (SEQ ID No: 375)
125	ctg cgg atc gcg ctc C (SEQ ID No: 376)
126	gcg gag cag cag aga gC (SEQ ID No: 377)
127	a tct tcc cag ccc acc G (SEQ ID No: 378)
128	ctg ggc ttc tac cct gcA (SEQ ID No: 379)
129	cgc ggg tac cac cag taT (SEQ ID No: 380)
130	ag acg ctg cag cgc acT (SEQ ID No: 381)
131	g gcg gct cag atc acc C (SEQ ID No: 382)
132	ggg aaa gtg aag gcc caG (SEQ ID No: 383)
133	cc tgg gca ggc tcc caA (SEQ ID No: 384)
134	g ggc acg tgc gtg gac T (SEQ ID No: 385)
135	gac ggg cgc ttc ctc cA (SEQ ID No: 386)
136	gg acc gcg gcg gac aG (SEQ ID No: 387)
137	cg gag tat tgg gac gag C (SEQ ID No: 388)
138	a cag act gac cga gag aG (SEQ ID No: 389)
139	c cag agg atg gag ccg T (SEQ ID No: 390)
140	g agc cag agg atg gag cT (SEQ ID No: 391)
141	gc tcc cac tcc atg agC (SEQ ID No: 392)
142	g cct gca ggg gat ggG (SEQ ID No: 393)
143	c cag cgc aag tgg gag A (SEQ ID No: 394)
144	c cgc ggg tac cag cag A (SEQ ID No: 395)
145	gcc tac ctg gag ggc cT (SEQ ID No: 396)
146	tc cgc ggg tac cag cG (SEQ ID No: 397)
147	ttc ctc cgc ggg tac cA (SEQ ID No: 398)
148	gg tac cag cag gac gcT (SEQ ID No: 399)
149	cg cag ttc gtg cgg ttG (SEQ ID No: 400)
150	c cag agc gag gac ggt A (SEQ ID No: 401)

Table 1-6

Probe No.	Base Sequence
151	cag atg atg tat ggc tgc C (SEQ ID No: 4 0 2)
152	g atg gag ccg cgg gcA (SEQ ID No: 4 0 3)
153	g gac ctg cag aca cgg C (SEQ ID No: 4 0 4)
154	gag acg ctg cag cgc G (SEQ ID No: 4 0 5)
155	tgg gag gcg gcc cgt T (SEQ ID No: 4 0 6)
156	gg gag gcg gcc cgt C (SEQ ID No: 4 0 7)
157	g ggc tac gtg gac gac G (SEQ ID No: 4 0 8)
158	cac acc atc cag ata atg C (SEQ ID No: 4 0 9)
159	gtg cag cat gag ggt ctC (SEQ ID No: 4 1 0)
160	gg tac cgg cag gac gcT (SEQ ID No: 4 1 1)
161	c cac tcc atg agg tat ttc A (SEQ ID No: 4 1 2)
162	g aca cgg aat gtg aag gG (SEQ ID No: 4 1 3)
163	c cta gtt ctc ttt gga gct A (SEQ ID No: 4 1 4)
164	gg ccg gac ggg cgc C (SEQ ID No: 4 1 5)
165	gcc tac ctg gat ggc aC (SEQ ID No: 4 1 6)
166	t ggc acg tgc gtg gag T (SEQ ID No: 4 1 7)
167	gac cag gag aca ggg aaA (SEQ ID No: 4 1 8)
168	gc acg gac ccc ccc aG (SEQ ID No: 4 1 9)
169	ac gag gac ctg agc tcC (SEQ ID No: 4 2 0)
170	gcg ccg tgg ata gag cG (SEQ ID No: 4 2 1)
171	g cgg gcg ccg tgg atG (SEQ ID No: 4 2 2)
172	c ccc atc gtg ggc atc C (SEQ ID No: 4 2 3)
173	ctg cag cgc acg gac G (SEQ ID No: 4 2 4)
174	g gac gcc ccc aag acG (SEQ ID No: 4 2 5)
175	ctc ttt gga gct gtg atc G (SEQ ID No: 4 2 6)
176	gac ggc aag gat tac atc T (SEQ ID No: 4 2 7)
177	gtc tac ctg gag ggc aC (SEQ ID No: 4 2 8)
178	cgg aga gcc tac ctg gaT (SEQ ID No: 4 2 9)
179	g gac ggt tct cac acc C (SEQ ID No: 4 3 0)
180	g ggc gag tgc gtg gag T (SEQ ID No: 4 3 1)

Table 1-7

Probe No.	Base Sequence
181	g gag tgg ctc cgc aga C (SEQ ID No: 4 3 2)
182	ga acc ttc cag aag tgg gT (SEQ ID No: 4 3 3)
183	cc atg agg tat ttc tac acT (SEQ ID No: 4 3 4)
184	g agg tat ttc tac acc tcc A (SEQ ID No: 4 3 5)
185	cgc ggg tac cgg cag C (SEQ ID No: 4 3 6)
186	cat gtg gcg gag cag cT (SEQ ID No: 4 3 7)
187	g ccg gag tat tgg gac G (SEQ ID No: 4 3 8)
188	ag tgg gag gcg gcc cT (SEQ ID No: 4 3 9)
189	gc ggg tac cgg cag gT (SEQ ID No: 4 4 0)
190	tgg aga gcc tac ctg gaT (SEQ ID No: 4 4 1)
191	tg ggg tcg gac ggg cA (SEQ ID No: 4 4 2)
192	gc aga tac ctg gag aac C (SEQ ID No: 4 4 3)
193	gac ctg ggg acc ctg cA (SEQ ID No: 4 4 4)
194	gt tct cac acc atc cag aG (SEQ ID No: 4 4 5)
195	g gcc ctg acc cag acc A (SEQ ID No: 4 4 6)
196	c ctc ctc ctg cta ctc tT (SEQ ID No: 4 4 7)
197	ctc ctc cgc ggg tac cA (SEQ ID No: 4 4 8)
198	gac cga gtg gac ctg gC (SEQ ID No: 4 4 9)
199	g aag gcc cac tca cag G (SEQ ID No: 4 5 0)
200	ca cag att gac cga gtg G (SEQ ID No: 4 5 1)
201	c aag tgg gag gcg gcc A (SEQ ID No: 4 5 2)
202	c ttc aca tcc gig tcc cC (SEQ ID No: 4 5 3)
203	cag ccc acc atc ccc atT (SEQ ID No: 4 5 4)

Table 2-1

Probe No.	Base Sequence
0	a gag acc agA gac ttg aca (SEQ ID No:53)
1	ctg gag act Aag gaa tgg a (SEQ ID No:54)
2	cga tat cta Aaa tcc ggc g (SEQ ID No:55)
3	cta aaa tcc Ggc gta gtc c (SEQ ID No:56)
4	c aca ctg aGc tgg cgt c (SEQ ID No:57)
5	att att ttc taC gtc tgt tgt t (SEQ ID No:58)
6	tg ctg tcc Ggg gat gga (SEQ ID No:59)
7	acc cgc agI gag gcc tc (SEQ ID No:60)
8	g agg aga aGa gtg ccc c (SEQ ID No:61)
9	tg atg tca gCt ctt ggg tc (SEQ ID No:62)
10	c ctg cgc tAt gac agg c (SEQ ID No:63)
11	gaa tgg aca Gtg ccc cag (SEQ ID No:64)
12	c aca ctg aCc tgg cgt c (SEQ ID No:65)
13	gg att tgc cGa gga gag g (SEQ ID No:66)
14	gaa tcc agc Ata gtc ctg a (SEQ ID No:67)
15	a gag acc agG gac ttg ac (SEQ ID No:68)
16	ctg gag act Gag gaa tgg (SEQ ID No:69)
17	gtt gct gct G gct gct g (SEQ ID No:70)
18	g gtg gcc acI agg att tg (SEQ ID No:71)
19	gct gct g gct gct gcI a (SEQ ID No:72)
20	agc gag gcA tca gag gg (SEQ ID No:73)
21	tcc caa aac Gtg gag act g (SEQ ID No:74)
22	at ttc tac taI gat ggg gag (SEQ ID No:75)
23	cta gaa tcc Agc gta gtc c (SEQ ID No:76)
24	t ggg tcc Gct ggc tcc (SEQ ID No:77)
25	cc aag aca cTc tat cac gc (SEQ ID No:78)
26	a gag gag caA agg ttc acc (SEQ ID No:79)
27	cga tat cta Gaa tcc ggc g (SEQ ID No:80)
28	tac tac gat Agg gag ctc t (SEQ ID No:81)
29	g ggt cca gGg ctc gtg (SEQ ID No:82)
30	cag gat ggg Cta tct ttg a (SEQ ID No:83)

Table 2-2

Probe No.	Base Sequence
31	at tcc ctc cGg gag att ag (SEQ ID No: 84)
32	t gct gct gct gct gcT at (SEQ ID No: 85)
33	ct gct gct gcT att ttt gtt (SEQ ID No: 86)
34	c ctg gga aaC aag aca tgg (SEQ ID No: 87)
35	a ggg ttt ctT gct gag gta (SEQ ID No: 88)
36	g ggc aac atC acc gtg ac (SEQ ID No: 89)
37	gct gct gct gct gcT att (SEQ ID No: 90)
38	cgg aat atc aTa ctg acc tg (SEQ ID No: 91)
39	gcc atg aac Atc agg aat tt (SEQ ID No: 92)
40	gc act cac Gct gtg ccc (SEQ ID No: 93)
41	cta aaa tcc Agc gta gtc c (SEQ ID No: 94)
42	aac ctg gag Tct gag gaa t (SEQ ID No: 95)
43	gaa gat gcc Gtg aag acc (SEQ ID No: 96)
44	c agc acc aAg agc tcc c (SEQ ID No: 97)
45	c gct gag gGa cat ctg g (SEQ ID No: 98)
46	g gag cag agT ttc acc tg (SEQ ID No: 99)
47	agg att tgc Gaa gga gag g (SEQ ID No: 100)
48	ct ggc ttc tGt ccc tgg a (SEQ ID No: 101)
49	a gct gca gaT ggt cca ga (SEQ ID No: 102)
50	ca gtt ggg aTg agt gac c (SEQ ID No: 103)

Table 2-3

Probe No.

Base Sequence

61	g aca cgg aaC gtg aag gc (SEQ ID No : 5 1 6)
62	tac gtg gac Aac acg cag (SEQ ID No : 5 1 7)
63	cc acc aag cAc aag tgg g (SEQ ID No : 5 1 8)
64	ag cag gag Agt ccg gag (SEQ ID No : 5 1 9)
65	gag aca cgg Caa gtg aag (SEQ ID No : 5 2 0)
66	g ggc tct caG tcc atg ag (SEQ ID No : 5 2 1)
67	c gac gcc gGg agc cag (SEQ ID No : 5 2 2)
68	g agg atg tCt ggc tgc g (SEQ ID No : 5 2 3)
69	g aag gcc caG tca cag ac (SEQ ID No : 5 2 4)
70	tc acc aag cAc aag tgg g (SEQ ID No : 5 2 5)
71	ag ttg aga gCc tac ctg g (SEQ ID No : 5 2 6)
72	tgc gtg gaG tgg ctc cg (SEQ ID No : 5 2 7)
73	gcg gcc cGt gtg gcg (SEQ ID No : 5 2 8)
74	g gcc cgt gTg gcg gag (SEQ ID No : 5 2 9)
75	tac cag cag Tac gcc tac (SEQ ID No : 5 3 0)
76	cgc ttc atc Tca gtg ggc (SEQ ID No : 5 3 1)
77	gag gag aca Ggg aaa gtg (SEQ ID No : 5 3 2)
78	g aca ggg aaA gtg aag gc (SEQ ID No : 5 3 3)
79	ac tca cag aGt cac cga g (SEQ ID No : 5 3 4)
80	ttc aca tcc Atg tcc cgg (SEQ ID No : 5 3 5)
81	c ggg tat gaA cag cac gc (SEQ ID No : 5 3 6)
82	g gac cgg aaC aca cgg aa (SEQ ID No : 5 3 7)
83	tct cac acc Ctc cag atg (SEQ ID No : 5 3 8)
84	ct cac acc Ctc cag agg (SEQ ID No : 5 3 9)
85	cc ctc cag aGg atg tat g (SEQ ID No : 5 4 0)
86	ggc cgc gAg gag ccc (SEQ ID No : 5 4 1)
87	c cac cag tTc gcc tac g (SEQ ID No : 5 4 2)
88	c tac ctg gaT ggc acg tg (SEQ ID No : 5 4 3)
89	g gag cag cTg aga gcc t (SEQ ID No : 5 4 4)
90	cag gag ggT ccg gag ta (SEQ ID No : 5 4 5)

Table 2-4

Probe No.	Base Sequence
91	ctg gag aac Cgg aag gag (SEQ ID No : 5 4 6)
92	c ctg gat gCc acg tgc g (SEQ ID No : 5 4 7)
93	c gtg ggg Tcg gac ggg (SEQ ID No : 5 4 8)
94	acc gcg gcA gac atg gc (SEQ ID No : 5 4 9)
95	c cgc ggg Aag ccc cg (SEQ ID No : 5 5 0)
96	gcg gcc cGt gag gcg (SEQ ID No : 5 5 1)
97	g gcc cgt gAg gcg gag (SEQ ID No : 5 5 2)
98	cag atc acc Gag cgc aag (SEQ ID No : 5 5 3)
99	ggg cgc ttA ctc cgc g (SEQ ID No : 5 5 4)
100	c tac ctg Cag ggc cgg (SEQ ID No : 5 5 5)
101	at tgg gac cTg cag aca c (SEQ ID No : 5 5 6)
102	ag atc acc aGg cgc aag t (SEQ ID No : 5 5 7)
103	gcc cgt cGg gcg gag (SEQ ID No : 5 5 8)
104	aca ggg aaa Gtg aag gcc (SEQ ID No : 5 5 9)
105	g aag tgg gcA gct gtg gt (SEQ ID No : 5 6 0)
106	g tgg aga gCc tac ctg g (SEQ ID No : 5 6 1)
107	tac atc gcc Ttg aac gag g (SEQ ID No : 5 6 2)
108	cc atg agg tGt ttc tcc ac (SEQ ID No : 5 6 3)
109	tac tac aac Gag agc gag g (SEQ ID No : 5 6 4)
110	tc gcg ctc Cgc tac tac (SEQ ID No : 5 6 5)
111	g cag aga gCc tac ctg g (SEQ ID No : 5 6 6)
112	c tac cct gcA gag atc ac (SEQ ID No : 5 6 7)
113	c cac cag taT gcc tac ga (SEQ ID No : 5 6 8)
114	cag atc acc Cag cgc aag (SEQ ID No : 5 6 9)
115	a ggc tcc caA tcc atg ag (SEQ ID No : 5 7 0)
116	t gtg gtg gtA cct tct gg (SEQ ID No : 5 7 1)
117	cg gag cag Tgg aga gtc (SEQ ID No : 5 7 2)
118	c gtg gac Tgg ctc cgc (SEQ ID No : 5 7 3)
119	c ttc ctc cAc ggg tac c (SEQ ID No : 5 7 4)
120	g gcg gac aGg gcg gct (SEQ ID No : 5 7 5)

Table 2-5

Probe No.	Base Sequence
121	tca cag act Cac cga gag (SEQ ID No : 5 7 6)
122	gg gac gag Cag aca ggg (SEQ ID No : 5 7 7)
123	c cga gag aGc ctg cgg (SEQ ID No : 5 7 8)
124	ac tca cag aTt gac cga ga (SEQ ID No : 5 7 9)
125	g gag ccg Tgg gcg cc (SEQ ID No : 5 8 0)
126	g atg gag cTg cgg gcg (SEQ ID No : 5 8 1)
127	c tcc atg agC tat ttc tcc (SEQ ID No : 5 8 2)
128	ggg gat ggG acc ttc ca (SEQ ID No : 5 8 3)
129	cct tct gga Cag gag cag (SEQ ID No : 5 8 4)
130	tac cag cag Aac gct tac g (SEQ ID No : 5 8 5)
131	g gag ggc cTg tgc gtg (SEQ ID No : 5 8 6)
132	g tac cag cGg gac gct t (SEQ ID No : 5 8 7)
133	c ggg tac cAg cag gac g (SEQ ID No : 5 8 8)
134	cag gac gcT tac gac gg (SEQ ID No : 5 8 9)
135	gtg cgg ttG gac agc ga (SEQ ID No : 5 9 0)
136	gag gac ggt Act cac acc (SEQ ID No : 5 9 1)
137	t ggc tgc Cac gtg ggg (SEQ ID No : 5 9 2)
138	ccg cgg gcA ccg tgg (SEQ ID No : 5 9 3)
139	cag aca cgg Cat gtg aag (SEQ ID No : 5 9 4)
140	g gcc cgt Tgg gcg gag (SEQ ID No : 5 9 5)
141	g gcc cgt Cgg gcg ga (SEQ ID No : 5 9 6)
142	tg gac gac Gcg cag ttc (SEQ ID No : 5 9 7)
143	cag ata atg Cat ggc tgc g (SEQ ID No : 5 9 8)
144	gag ggt ctC ccc aag cc (SEQ ID No : 5 9 9)
145	agg tat ttc Acc aca tcc g (SEQ ID No : 6 0 0)
146	at gtg aag gGc cac tca c (SEQ ID No : 6 0 1)
147	c acg gag ctT gtg gag ac (SEQ ID No : 6 0 2)
148	c ggg cgc Ctc ctc cg (SEQ ID No : 6 0 3)
149	g gat ggc aCg tgc gtg g (SEQ ID No : 6 0 4)
150	c ccc ccc aGg acg cat (SEQ ID No : 6 0 5)

Table 2-6

Probe No.	Base Sequence
151	ctg agc tcC tgg acc gc (SEQ ID No : 6 0 6)
152	g ata gag cGg gag ggg c (SEQ ID No : 6 0 7)
153	ccg tgg atG gag cag ga (SEQ ID No : 6 0 8)
154	c acg gac Gcc ccc aag (SEQ ID No : 6 0 9)
155	ag tgg gcg Tct gtg gtg (SEQ ID No : 6 1 0)
156	c ccc aag acG cat atg ac (SEQ ID No : 6 1 1)
157	g cag gag Agg ccg gag (SEQ ID No : 6 1 2)
158	gat tac atc Tcc ctg aac g (SEQ ID No : 6 1 3)
159	tc cgc aga Cac ctg gag (SEQ ID No : 6 1 4)
160	g aag tgg gTg gct gtg g (SEQ ID No : 6 1 5)
161	t ttc tac acT tcc gtg tcc (SEQ ID No : 6 1 6)
162	ac acc tcc Atg tcc cgg (SEQ ID No : 6 1 7)
163	c cgg cag Cac gcc tac (SEQ ID No : 6 1 8)
164	tat tgg gac Gag gag aca c (SEQ ID No : 6 1 9)
165	g gcg gcc cTt gtg gcg (SEQ ID No : 6 2 0)
166	c cgg cag gTc gcc tac (SEQ ID No : 6 2 1)
167	g gac ggg cAc ttc ctc c (SEQ ID No : 6 2 2)
168	g acc ctg cAc ggc tac t (SEQ ID No : 6 2 3)
169	cc atc cag aGg atg tat gg (SEQ ID No : 6 2 4)
170	c cag acc Agg gcg ggc (SEQ ID No : 6 2 5)
171	g cta ctc tTg ggg gcc c (SEQ ID No : 6 2 6)
172	g gac ctg gCg acc ctg (SEQ ID No : 6 2 7)
173	cac tca cag Gct gac cga (SEQ ID No : 6 2 8)
174	g gcg gcc Agt gtg gcg (SEQ ID No : 6 2 9)
175	gtg tcc cCg ccc ggc (SEQ ID No : 6 3 0)
176	t ctg ccc Gag ccc ctc (SEQ ID No : 6 3 1)

Table 3-1

Allele Number	Probe Number for Detection									
A*010101	0	1	2	3	4	5	6	7	8	
A*010102	9									
A*0102	10	11								
A*0103	12									
A*0106	13	14								
A*0107	15	16	17							
A*0108	18									
A*0109	19									
A*020101	20	21	22	23	24	25	26	27	28	
A*020102	29	30	31	21	22	23	24	32	33	34
A*020103	37									
A*020104	38									
A*020105	39									
A*020106	40									
A*020107	41	42								
A*020108	43									
A*020109	31	21	22	23	24	25	44	26	27	42
A*0202	45	42								
A*0203	20	46	47	48	27	28				
A*0204	20	21	22	24	25	26	27	28		
A*0205	45	28								
A*0206	20	49	21	22	23	24	25	26	27	28
A*0207	50									
A*0208	49	45								
A*0209	51									
A*0210	20	23	52	25	26	27	28			
A*0211	53	42	28							

Table 3-2

Allele Number	Probe Number for Detection																							
A*0212	20	25	54	27	28																			
A*0213	20	55	56	27	28																			
A*0214	45	26	28																					
A*0216	57	42	28																					
A*021701	20	58	24	25	26	27	28																	
A*021702	20	58	24	25	26	27	59																	
A*0218	60																							
A*0219	61	22	62	25	54	27																		
A*022001	29	63	30	21	22	23	24	32	33	34	35	25	26	27	36									
A*022002	64																							
A*0221	65																							
A*0222	20	21	22	23	24	25	44	27	28															
A*0224	29	30	31	21	22	23	24	32	33	35	25	26	27	36										
A*0225	46	66	26	27																				
A*0226	20	55	67	27	28																			
A*0227	22	68	69	27	36																			
A*0228	70	68	25	26	36																			
A*0229	71	68																						
A*0230	72																							
A*0231	73																							
A*0233	74																							
A*0234	31	75	76	22	23	24	25	44	26	27	42													
A*0235	31	75	22	23	24	32	33	34	35	25	26	27	36											
A*0236	29	30	31	21	22	23	24	32	33	34	35	25	26	27										
A*0237	22	68	25	54	27																			

Table 3-3

[illegible]

Table 3-5

Allele Number	Probe Number for Detection									
A*240301	126	36	127							
A*240302	130									
A*2404	85	54	126	127						
A*2405	85	131	54	126	27					
A*2406	85	34	62	25	44	120	27			
A*2407	132	125	54	126	127					
A*2408	133	28								
A*2410	85	54	126	105	106					
A*2413	85	34	62	25	26	78	27			
A*2414	85	24	33	34	62	54	126	27		
A*2415	85	125	17	92	33	34	62	54	126	27
A*2417	85	125	17	58	104	34	62	54	126	27
A*2418	34	55	48	67	97					
A*2419	85	132	96	58	104	33	34	62	54	126
A*2420	85	125	17	58	104	33	34	62	54	126
A*2421	85	125	17	58	104	33	62	54	126	27
A*2422	44	36	127							
A*2423	85	54	126	27	134					
A*2424	91	58	34	80	81	122	78	27		
A*2425	123	54								
A*2426	135									
A*2427	136									
A*2428	85	61	17	58	104	33	34	62	54	126
A*2429	125	17	58	33	34	62	54	126	27	
A*2430	85	21	125	17	58	104	33	34	62	54
A*2431	137	25	54	27						
A*2432	138	34	54	27						
A*2433	62	25	54	27	42					
A*2434	53	54								

Table 3-6

Allele Number		Probe Number for Detection						
A*2435	139							
A*2437	140							
A*2438	141							
A*2501	138	142	28					
A*2502	91	138	142	28				
A*2503	138	143	47	48	106			
A*2504	138	47	56	106				
A*2601	90	48	142					
A*2602	144							
A*2603	21	61	48	142				
A*2604	145							
A*2605	16	48	142					
A*2606	146							
A*2607	31	48	142					
A*2608	56	142						
A*2609	147	131	143	47	27			
A*2610	34	131	143	47	48			
A*2612	131	143	66	44				
A*2613	91	147	131	143	47	48		
A*2614	49	90	147	148	55	48		
A*2615	149							
A*2616	10	90	147	131	143	47	48	
A*2617	150							
A*2618	147	148	80	81	119			
A*29010101	151							
A*2902	152	36	28					
A*2903	152	28						
A*2904	153	80						
A*2905	152	56	36					

Table 3-7

Allele Number		Probe Number for Detection							
A*2906	122	154							
A*2907	152	58	122	36					
A*3001	10	15	155						
A*3002	11	15	156	27	36				
A*3003	11	156	27	36					
A*3004	11	25	36						
A*3006	157								
A*3007	86	156	27	36					
A*3008	49	15	155						
A*3009	11	81	122	36					
A*3010	158								
A*3011	10	155							
A*3012	15	156	27	36					
A*310102	15	121	159						
A*3102	84	53	104	147	121	80	122	36	
A*3103	53	160	80	122	36				
A*3104	160	159							
A*3105	15	53	104	147	121	80	122		
A*3106	15	53	104	121	80	122	36		
A*3107	15	125	147	121	81	122	36		
A*3108	161	85	125	147	121	122	36		
A*3109	162								
A*3201	125	122	163						
A*3202	54	163							
A*3203	125	164	80	122					
A*3204	138	97	165	166					
A*3205	167	125	122	163					
A*3206	138	25	26	27	36				
A*3207	10	138	80	81	122	27	36		

Table 3-8

Allele Number		Probe Number for Detection							
A*3301	168								
A*3303	90	121	159						
A*3304	169								
A*3305	170								
A*3306	171								
A*3401	172								
A*3402	47	67	27	36	173	174	175	28	
A*3403	160	55	67	27					
A*3404	70	47	67	36					
A*3405	176								
A*3601	177	79							
A*3602	178								
A*3603	179	177	79	36					
A*3604	105								
A*4301	114	142	28						
A*6601	91	96	48	142					
A*6602	57	175	28						
A*6603	47	57	180						
A*6604	47	181							
A*680101	49	91	104	44	182	28			
A*680102	183	91	104	44	182	28			
A*6802	184	28							
A*680301	183	104	44	182	28				
A*680302	183	35	44						
A*6804	90	53	68	36					
A*6805	183	21	35	44					
A*6806	91	89	68	25					
A*6807	91	185	68	25					

Table 3-9

Allele Number		Probe Number for Detection							
A*6808	186	182	28						
A*6809	183	54							
A*6810	49	187	91	104	25	44	27	36	
A*6812	183	91	44						
A*6813	49	91	104	44	182				
A*6814	68	154							
A*6815	184	90	21						
A*6816	188								
A*6817	189	28							
A*6819	68	25	44	190					
A*6820	191								
A*6821	25	192							
A*6822	193								
A*6823	183	194	35	44					
A*6901	91	22	23	24	25	44	26	27	42
A*7401	195	28							
A*7402	196	96	164	197	121	122	36		
A*7403	198								
A*7404	31	96	164	80	122				
A*7405	199								
A*7406	21	61	164	80	122				
A*7407	53	200	164	80	122				
A*7408	201								
A*7409	202								
A*8001	203								

Table 4-1

Allele Number	Probe Number for Detection							
A*010101	0	1	2	3	4	5	6	7
A*010102	8							
A*0102	9	10						
A*0103	11							
A*0106	12	13						
A*0107	14	15	16					
A*0108	17							
A*0109	18							
A*020101	19	20	21	22	23	24	25	13 26 27
A*020102	28	29	20	21	22	23	24	30 31 32 33 25 13 26 34
A*020103	35							
A*020104	36							
A*020105	37							
A*020106	38							
A*020107	39	27						
A*020108	40							
A*020109	20	21	22	23	24	25	12	13 26 27
A*0202	41	27						
A*0203	19	42	43	44	26	27		
A*0204	19	20	21	45	24	25	13	26 27
A*0205	46	41	27					
A*0206	19	46	20	21	22	23	24	25 13 26 27
A*0207	47							
A*0208	46	41						
A*0209	48							
A*0210	19	49	50	25	13	26	27	
A*0211	51	27						
A*0212	19	25	52	26	27			
A*0213	19	43	52	26	27			

[illegible]

Allele Number

[illegible]

Table 4-4

Allele Number		Probe Number for Detection							
A*1103	96	97	52						
A*1104	46	69	58	52	26	72	34		
A*1105	98								
A*1106	69	21	58	52	72	34			
A*1107	99								
A*1108	46	69	58	43					
A*1109	100								
A*1110	46	82	58	52	34				
A*1111	101	58	52	34					
A*1112	46	69	58	16	52	72	34		
A*1113	102								
A*1114	95	103							
A*2301	104	13	71	105					
A*2302	77	32	73	74	44	106	26		
A*2303	31	107	73	13					
A*2304	77	32	73	74	13	71	26	72	34
A*2305	108	13							
A*2306	109								
A*2309	13	71	105						
A*240201	77	110	52	111	105				
A*240202	77	110	16	55	93	31	32	52	111
A*240203	112								26
A*240204	113								
A*240301	111	34	105						
A*240302	77	52	111	26	72	34			
A*2404	77	52	111	105					
A*2405	77	114	52	111	26				
A*2406	77	32	59	25	44	106	26		
A*2407	69	110	52	111	105				

Table 4-5

Allele Number	Probe Number for Detection									
A*2408	115	116								
A*2410	77	52	111	72	34					
A*2413	77	32	59	25	13	71	26			
A*2414	77	24	31	32	59	52	111	26		
A*2415	77	110	16	83	31	32	59	52	111	26
A*2417	77	110	16	55	93	32	59	52	111	26
A*2418	32	43	12	13	88					
A*2419	77	69	58	55	93	31	32	59	52	111 26
A*2420	77	110	16	55	93	31	32	59	52	111 26
A*2421	77	110	16	55	93	31	59	52	111	26
A*2422	117	34	105							
A*2423	77	52	111	26	118					
A*2424	69	55	32	73	74	13	71	26		
A*2425	108	52								
A*2426	119									
A*2427	120									
A*2428	77	58	16	55	93	31	32	59	52	111 26
A*2429	110	16	55	31	32	59	52	111	26	
A*2430	77	121	110	16	55	93	31	32	59	52 111 26
A*2431	122	25	52	26						
A*2432	123	32	52	26						
A*2433	59	25	52	26	27					
A*2434	124	52								
A*2435	125									
A*2437	126									
A*2438	127									
A*2501	123	128	129							
A*2502	69	123	128	129						
A*2503	123	42	43	44	34					

Table 4-6

Allele Number		Probe Number for Detection						
A*2504	123	43	52	34				
A*2601	82	44	128					
A*2602	130							
A*2603	21	58	44	128				
A*2604	131							
A*2605	15	44	128					
A*2606	132							
A*2607	20	44	128					
A*2608	52	128						
A*2609	133	114	42	43	26			
A*2610	32	114	42	43	44			
A*2612	114	42	25	44				
A*2613	69	133	114	42	43	44		
A*2614	46	82	133	134	43	44		
A*2615	135							
A*2616	9	82	133	114	42	43	44	
A*2617	136							
A*2618	133	134	73	74	44			
A*29010101	137							
A*2902	138	34	129					
A*2903	138	129						
A*2904	139	73						
A*2905	138	52	34					
A*2906	138	13	34					
A*2907	138	55	13	34				
A*3001	9	14	140					
A*3002	10	14	141	26	34			
A*3003	10	141	26	34				
A*3004	10	25	34					

Table 4-7

Allele Number		Probe Number for Detection							
A*3006	142								
A*3007	78	141	26	34					
A*3008	46	14	140						
A*3009	10	74	13	34					
A*3010	143								
A*3011	9	140							
A*3012	14	141	26	34					
A*310102	14	107	144						
A*3102	20	51	93	133	107	73	13	34	
A*3103	51	134	73	13	34				
A*3104	134	144							
A*3105	14	51	93	133	107	73	13		
A*3106	14	51	93	107	73	13	34		
A*3107	14	110	133	107	74	13	34		
A*3108	145	77	110	133	107	13	34		
A*3109	146								
A*3201	123	13	147	129					
A*3202	123	52	147	129					
A*3203	110	148	73	13					
A*3204	123	88	149	34					
A*3205	78	123	13	147	129				
A*3206	123	25	13	26	34				
A*3207	9	123	73	74	13	26	34		
A*3301	150								
A*3303	82	107	144						
A*3304	151								
A*3305	152								
A*3306	153								
A*3401	133	43	44	26	34	154	155	129	

Table 4-8

Allele Number		Probe Number for Detection							
A*3402	43	13	26	34	154	156	155	129	
A*3403	134	43	13	26					
A*3404	157	43	13	34					
A*3405	158								
A*3601	26	72							
A*3602	88								
A*3603	83	26	72	34					
A*3604	72								
A*4301	101	128	129						
A*6601	69	58	44	128					
A*6602	53	155	129						
A*6603	43	53	34						
A*6604	43	159							
A*680101	46	69	93	44	160	27			
A*680102	161	69	93	44	160	27			
A*6802	162	27							
A*680301	161	93	44	160	27				
A*680302	161	33	44						
A*6804	82	51	63	34					
A*6805	161	21	33	44					
A*6806	69	81	63	25					
A*6807	69	163	63	25					
A*6808	89	160	27						
A*6809	161	52							
A*6810	46	164	69	93	25	44	26	34	
A*6812	161	69	44						
A*6813	46	69	93	44	160				
A*6814	46	164	69	93	25	44	26	34	
A*6815	162	82	21						

(Example 3)

Probes for identification of HLA-B allele

Extraction of DNA from 1 ml of human blood was performed using GFX Genomic Blood DNA Purification
 5 Kit from Amersham Biosciences in the same manner as in Example 1.

Next, quantitative PCR was carried out in the same manner as in Example 1 except that probes in the probe list B1 were used and 3 μ l of the mixed
 10 primers consisting of 1 μ l each of respective solutions of the following primers (10 pmol/ μ l):

CTGAGCTCTTCCTCCTACACA (SEQ ID NO:~~518~~1155)

TCCTTCCCGTTCTCCAGGT (SEQ ID NO:~~519~~1156)

AGGTCTCGGTCAGGGCCA (SEQ ID NO:~~520~~1157)

15 After PCR amplification, the sample was identified being B*520101, referring to Amp Plot and Dissociation curves on a display of 5700 software and the allele-probe list B1 (described later).

(Example 4)

20 Extraction of DNA from 1 ml of human blood was performed in the same way as in Example 1. PCR of human HLA-B was then performed in the same manner as in Example 2 except that 2 μ l of the mixed primer consisting of 1 μ l each of the respective solutions
 25 of the following primers at 10 pmol/ μ l and 13 μ l of ultra pure water used:

CTGAGCTCTTCCTCCTACACA (SEQ ID NO:~~518~~1155)

GCTCCCACTCCATGAGGTATTTC (SEQ ID NO:~~521~~1158).

At the same time, a DNA microarray was prepared to identify the allele in the specimen described above in the same manner as in Example 2, except that
 5 probes in the probe list B2 were to form the probe dots respectively.

Then, hybridization was performed using the above specimen and the prepared DNA microarray in the same manner as in Example 2. Fluorometry measurement
 10 was conducted with GenePix4000B (Axon). Referring to the allele-probe list B2 (described later), the sample was identified as B*520101.

Allele list

15 B*070201

atgctggtcatggcgcccgaaccgtcctcctgctgctctcggcgccctggccctgaccgagacctgggcccgtccca
 ctccatgaggtatttctacacctccGtgtcccgcccgccggcgaggagccccgttcatctcagtgggctacgtggacg
 acaccagttcgtgaggttcgacagcgacgccgagtcgagagaggagccgcgggcgccgtggatagagcaggagggg
 ccggagtattgggaccggaacacacagatctacaagcccaggcacagactgaccgagagagcctgcggaacctgcgcgg
 20 ctactacaaccagagcgaggccgggtctcacacctccagagCatgtacggctgcgacgtggggccggacgggcgcctcc
 tccgcgggCatgaccagTaccgctacgacggcaaggattacatcgccctgaacgaggacctgcgctcctggaccgccgcg
 gacacggcggtcagatcaccagcgcaagtgggagggcgcccgtagggcgagcagcGGagagcctacctggaggcgA
 gtgctgaggtGgctccgagatacctggagaacgggaaggacaagctgGagcgcgctgacccccaaagacacacgtga
 cccaccacccatctctgacctgaggccaccctgaggtgtgggcctgggtttctaccctgcggagatcacactgacc
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 NO: 5441181)

B*0723

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 NO: 5451182)

B*0724

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 NO: 5461183)

B*0725

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 NO: 5471184)

B*0726

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 NO: 5481185)

B*0727

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 NO: 5491186)

B*0728

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B*0729

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 NO: 5511188)

B*0730

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 NO: 5521189)

B*0731

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 NO: 5531190)

B*0801

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5 B*0802

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B*0803

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B*0804

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 NO: 5571194)

B*0805

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 NO: 5581195)

B*0806

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 NO: 5591196)

B*0807

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 NO: 5601197)

B*0809

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B*0810

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B*0811

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B*0812

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 NO: 5641201)

B*0813

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 NO: 5651202)

B*0814

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 NO: 5661203)

B*0815

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 NO: 5671204)

B*0816

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 NO: 5681205)

B*0817

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N0: ~~621~~1258)

20 B*1535

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tgcgcggtactacaaccagagcgaggccgggtctcacaccctccagaCGatgtacggctgcgacgtggggccggacggg
25 cgctcctccgcgggcatgaccagtCcgctacgacggcaaggattacatcgccctgaacgaggacctgagctcctggac
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N0: 6231259)

B*1536

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5 ggaggggcccggagtattgggaccgggagacacagatctccaagaccaacacagacttaccgagagaacctgcgCaccg
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10 N0: 6241260)

B*1537

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N0: 6251261)

20 B*1538

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N0: ~~626~~1262)

B*1539

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 5 ggaggggcccggagtattgggaccgggaGacacagatctCcaagaccaacAcacagacttaccgagagagcctgcggaacc
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10 N0: ~~627~~1263)

B*1540

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N0: ~~628~~1264)

20 B*1542

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 25 cgcctcctccgcgggcataaccagttAgcctacgacggcaaggattacatcgccctgaacgaggacctgagctcctggac
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N0: ~~629~~1265)

B*1543

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5 ggaggggcccggagtattgggaccgggagacacagatctccaagaccaacacagacttacgagagGacctgcggaccc
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10 N0: ~~630~~1266)

B*1544

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N0: ~~631~~1267)

20 B*1545

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N0: 6321268)

B*1546

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 5 acaccagttcgtgaggttcgacagcgacgccAcgagtcgaggaaggagccgcgggcgccAtggatagagcaggagggg
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 10 gtgctggagtggtccgcagatacctggagaacgggaaggagacgctgcagcgcgGg (SEQ ID NO: 6331269)

B*1547

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 N0: 6341270)

20 B*1548

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N0: ~~635~~1271)

B*1549

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10 N0: ~~636~~1272)

B*1550

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N0: ~~637~~1273)

20 B*1551

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 25 cgcctcctccgcgggcatgaccagtCcgccctacgacggcaaggattacatcgccctgaacgaggacctgagctcctggac
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NO: ~~638~~1274)

B*1552

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 5 acacgcagttcgtgaggttcgacagcgacgccgagtcgagagaggagccgcggcgccgtggatagagcaggagggg
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B*1553

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20 B*1554

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 B*1556
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NO: 6431279)

B*1557

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10 cggcggtcagatcaccagcgcaagtgggagggcgcccgtagggcgagcagtgagagacctacctggagggccTgtgc
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B*1558

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15 acaccagttcgtgaggttcgacagcgacgcgcgagtcaggatggcggcccgccatggatagagcaggagggg
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20 gtgcgtggagtggctccgcagatacctggagaacgggaaggagacgctgcagcgcGg (SEQ ID NO: 6451281)

B*1560

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B*1561

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B*1563

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B*1569

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10 NO: 6551291)

B*1570

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5 B*1572

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B*1573

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B*1574

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B*180101

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B*1803

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5 B*1806

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B*3520

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B*3521

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B*3522

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B*3523

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B*3524

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B*3526

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B*3527

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B*3528

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B*3530

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5 B*3533

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B*3535

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5 B*3536

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B*3537

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5 B*3539

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B*3541

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B*3542

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B*4010

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5 NO: 8481443)

B*4011

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NO: 8491444)

15 B*4012

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B*4013

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B*401401

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15 B*401402

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 NO: 8531448)

B*4015

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5 NO: 8541449)

B*4016

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15 B*4018

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NO: 8561451)

B*4019

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5 NO: 8571452)

B*4020

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15 B*4021

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NO: 8591454)

B*4023

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B*4024

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 NO: ~~861~~1456)

15 B*4025

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 NO: ~~862~~1457)

B*4026

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5 NO: 8631458)

B*4027

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NO: 8641459)

15 B*4028

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NO: 8651460)

B*4029

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5 NO: 8661461)

B*4030

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NO: 8671462)

15 B*4031

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NO: 8681463)

B*4032

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5 NO: 8691464)

B*4033

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NO: 8701465)

15 B*4034

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NO: 8711466)

B*4035

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5 NO: 8721467)

B*4036

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B*5103

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15 B*5104

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B*5105

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B*5106

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NO: 9591553)

B*5107

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5 B*5108

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 NO: 9621556)

B*5110

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B*5112

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 NO: ~~964~~1558)

20 B*511301

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N0: 9651559)

B*511302

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10 N0: 9661560)

B*5114

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N0: 9671561)

20 B*5115

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N0: ~~968~~1562)

B*5116

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10 N0: ~~969~~1563)

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N0: ~~970~~1564)

20 B*5118

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N0: ~~971~~1565)

B*5119

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10 N0: ~~972~~1566)

B*5120

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N0: ~~973~~1567)

20 B*5121

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N0: 9741568)

B*5122

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10 N0: 9751569)

B*5123

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N0: 9761570)

20 B*5124

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N0: ~~977~~1571)

B*5126

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10 N0: ~~978~~1572)

B*5128

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N0: ~~979~~1573)

20 B*5129

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5 B*5130

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B*5131

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25 NO: ~~982~~1576)

B*5132

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NO: ~~984~~1578)
20 B*5134
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NO: ~~985~~1579)

B*520101

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B*520102

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B*520103

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NO: ~~988~~1582)

B*520104

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20 NO: ~~989~~1583)

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NO: ~~991~~1585)

B*5204

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B*5205

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B*5303

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NO: 9961590)

B*5304

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B*5305

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B*5306

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NO: ~~999~~1593)

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 5 cgctcctcccgggcatgaccagtccgcctacgacggcaaggattacatcgccctgaacgaggacctgagctcctggac
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The following Tables 5-1 to 5-9 show Probe list
 B1, and Tables 6-1 to 6-8 show Probe list B2. The
 Allele-probe list is shown in Tables 7 and 8.

Table 5-1

Probe No.	Base Sequence
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2	gc ctc ctc cgc ggg C (SEQ ID No: 3640)
3	c cgc ggg cat gac cag T (SEQ ID No: 4641)
4	gt gag gcg gag cag cG (SEQ ID No: 5642)
5	t gag gcg gag cag cgG (SEQ ID No: 6643)
6	gcc tac ctg gag ggc gA (SEQ ID No: 7644)
7	ggc gag tgc gtg gag tG (SEQ ID No: 8645)
8	c ggg aag gac aag ctg G (SEQ ID No: 9646)
9	g gag tgg ctc cgc agG (SEQ ID No: 10647)
10	gc tac gtg gac gac acG (SEQ ID No: 11648)
11	a cag atc tac aag acc aac A (SEQ ID No: 12649)
12	gt gag gcg gag cag gaC (SEQ ID No: 13650)
13	c ctc ctc cgc ggg cat A (SEQ ID No: 14651)
14	cg tct tcc cag tcc acc A (SEQ ID No: 15652)
15	ct cac acc ctc cag agG (SEQ ID No: 16653)
16	ac cgg aac aca cag atc tT (SEQ ID No: 17654)
17	a cag atc ttc aag acc aac A (SEQ ID No: 18655)
18	cgc ggg cat gac cag tC (SEQ ID No: 19656)
19	c cgg aac aca cag atc tG (SEQ ID No: 20657)
20	ca cag act gac cga gag aA (SEQ ID No: 21658)
21	g gcc ggg tct cac atc A (SEQ ID No: 22659)
22	ac atc atc cag agg atg taT (SEQ ID No: 23660)
23	gg atg tat ggc tgc gac C (SEQ ID No: 24661)
24	c tgc gac ctg ggg ccC (SEQ ID No: 25662)
25	ag aca cag aag tac aag cG (SEQ ID No: 26663)
26	c aag cgc cag gca cag G (SEQ ID No: 27664)
27	gca cag gct gac cga gT (SEQ ID No: 28665)
28	gag gcc ggg tct cac aT (SEQ ID No: 29666)
29	g tct cac atc atc cag agG (SEQ ID No: 30667)
30	cgc ctc ctc cgc ggg T (SEQ ID No: 31668)

Table 5-2

Probe No.	Base Sequence
31	c aag gcc cag gca cag G (SEQ ID No: 32669)
32	c aag acc aac aca cag act T (SEQ ID No: 33670)
33	cgc ggg tat gac cag tC (SEQ ID No: 34671)
34	gcc tac ctg gag ggc aC (SEQ ID No: 35672)
35	ctg gag aac ggg aag gaG (SEQ ID No: 36673)
36	g acg ctg gag cgc gcG (SEQ ID No: 37674)
37	gcc tac ctg gag ggc cT (SEQ ID No: 38675)
38	ggc ctg tgc gtg gag tC (SEQ ID No: 39676)
39	c ggc cgc ggg gag cT (SEQ ID No: 40677)
40	tcc tgg acc gcc gcg A (SEQ ID No: 41678)
41	cgg aac ctg cgc ggc C (SEQ ID No: 42679)
42	gcc tac ctg gag ggc C (SEQ ID No: 43680)
43	gg gag gcg gcc cgt gT (SEQ ID No: 44681)
44	gt gtg gcg gag cag gaC (SEQ ID No: 45682)
45	cgt gag gcg gag cag cT (SEQ ID No: 46683)
46	c cgg aac aca cag atc tC (SEQ ID No: 47684)
47	ca cag act tac cga gag G (SEQ ID No: 48685)
48	ctg cgg acc ctg ctc C (SEQ ID No: 49686)
49	c cgc ggg tat gac cag G (SEQ ID No: 50687)
50	cac tcc atg agg tat ttc G (SEQ ID No: 51688)
51	gg tat ttc gac acc gcc A (SEQ ID No: 52689)
52	cg aga gag gag ccg cC (SEQ ID No: 53690)
53	a gcc tac ctg gag ggc A (SEQ ID No: 54691)
54	g atg tgt agg agg aag agC (SEQ ID No: 55692)
55	ctg cgc acc gcg ctc C (SEQ ID No: 56693)
56	c cga gag aac ctg cgg aT (SEQ ID No: 57694)
57	gag aac ctg cgg atc gC (SEQ ID No: 58695)
58	ctg cgg atc gcg ctc C (SEQ ID No: 59696)
59	c acg ctg gag cgc gcG (SEQ ID No: 60697)
60	g gac cgg aac aca cag aC (SEQ ID No: 61698)

Table 5-3

Probe No.	Base Sequence
61	c act tgg cag acg atg taT (SEQ ID No: <u>62699</u>)
62	g gag tat tgg gac cgg G (SEQ ID No: <u>63700</u>)
63	c cgg gac aca cag atc tT (SEQ ID No: <u>64701</u>)
64	cgt gtg gcg gag cag cT (SEQ ID No: <u>65702</u>)
65	cgc ggg tac cac cag G (SEQ ID No: <u>66703</u>)
66	c aca cag act gac cga gT (SEQ ID No: <u>67704</u>)
67	ttc aag acc aac aca cag G (SEQ ID No: <u>68705</u>)
68	c cgg gag aca cag atc tC (SEQ ID No: <u>69706</u>)
69	g tgc tgg gcc ctg ggC (SEQ ID No: <u>70707</u>)
70	g gct cag atc acc cag cT (SEQ ID No: <u>71708</u>)
71	g tct cac act tgg cag aC (SEQ ID No: <u>72709</u>)
72	cgc ggg cat aac cag ttA (SEQ ID No: <u>73710</u>)
73	cg atg tat ggc tgc gac C (SEQ ID No: <u>74711</u>)
74	tgg gag cca tct tcc caA (SEQ ID No: <u>75712</u>)
75	gag cag ctg aga gcc tG (SEQ ID No: <u>76713</u>)
76	gg tct cac acc ctc cag T (SEQ ID No: <u>77714</u>)
77	cc aga cca gca gga gaC (SEQ ID No: <u>78715</u>)
78	cc ctg aga tgg gag ccA (SEQ ID No: <u>79716</u>)
79	c atg agg tat ttc tac acc G (SEQ ID No: <u>80717</u>)
80	c tcc cac tcc atg agg C (SEQ ID No: <u>81718</u>)
81	g cag gag ggg ccg gaA (SEQ ID No: <u>82719</u>)
82	g gag tgg ctc cgc aga C (SEQ ID No: <u>83720</u>)
83	g acg ctg cag cgc gcG (SEQ ID No: <u>84721</u>)
84	c acc ctc cag agg atg taT (SEQ ID No: <u>85722</u>)
85	tc ctg ctg ctc tcg ggA (SEQ ID No: <u>86723</u>)
86	gcg ccc cgg gcg ccA (SEQ ID No: <u>87724</u>)
87	gag tat tgg gac cgg gaG (SEQ ID No: <u>88725</u>)
88	c cgt gag gcg gag cag T (SEQ ID No: <u>89726</u>)
89	gac caa act cag gac acC (SEQ ID No: <u>90727</u>)
90	cc gcc tac gac ggc aaA (SEQ ID No: <u>91728</u>)

Table 5-4

Probe No.	Base Sequence
91	g agc tcc tgg acc gcG (SEQ ID No: 92729)
92	g gat tac atc gcc ctg aaT (SEQ ID No: 93730)
93	c gac acg cag ttc gtg C (SEQ ID No: 94731)
94	cag atc tcc aag acc aac A (SEQ ID No: 95732)
95	c gga gct gtg gtc gct A (SEQ ID No: 96733)
96	c acc ctc cag agg atg tT (SEQ ID No: 97734)
97	tac gcc tac gac ggc aaA (SEQ ID No: 98735)
98	cag atc tgc aag acc aac A (SEQ ID No: 99736)
99	cg agt ccg agg atg gcT (SEQ ID No: 100737)
100	g ggc ctg tgc gtg gaC (SEQ ID No: 101738)
101	gg gcc ggc tcc cac tT (SEQ ID No: 102739)
102	ac atg aag gcc tcc gcG (SEQ ID No: 103740)
103	gca gct gtg gtg gtg cT (SEQ ID No: 104741)
104	gtg acc cac cac ccc G (SEQ ID No: 105742)
105	g tat tgg gac cgg gag aT (SEQ ID No: 106743)
106	gcg agt ccg agg atg gC (SEQ ID No: 107744)
107	c acc ctc cag agg atg tC (SEQ ID No: 108745)
108	gg acc gcc gcg gac aA (SEQ ID No: 109746)
109	g atg tac ggc tgc gac C (SEQ ID No: 110747)
110	g tct cac acc ctc cag aC (SEQ ID No: 111748)
111	ct cac acc ctc cag acG (SEQ ID No: 112749)
112	ac cga gag aac ctg cgC (SEQ ID No: 113750)
113	c ggg aag gag acg ctg C (SEQ ID No: 114751)
114	cc ctg aac gag gac ctg A (SEQ ID No: 115752)
115	g gag ccc cgc ttc atc G (SEQ ID No: 116753)
116	agg tat ttc tac acc gcc A (SEQ ID No: 117754)
117	t ccg agg atg gcg ccC (SEQ ID No: 118755)
118	g ttc gac agc gac gcc A (SEQ ID No: 119756)
119	gag ccg cgg gcg ccA (SEQ ID No: 120757)
120	g gcg gag cag ctg aga A (SEQ ID No: 121758)

Table 5-5

Probe No.	Base Sequence
121	a acc tac ctg gag ggc C (SEQ ID No: 122 <u>759</u>)
122	acc tac ctg gag ggc cT (SEQ ID No: 123 <u>760</u>)
123	c tcc aag acc aac aca cG (SEQ ID No: 124 <u>761</u>)
124	c tac gtg gac gac acg cT (SEQ ID No: 125 <u>762</u>)
125	c cgg gag aca cag atc tT (SEQ ID No: 126 <u>763</u>)
126	ac aca cag act tac cga gT (SEQ ID No: 127 <u>764</u>)
127	ca cag act tac cga gtg aA (SEQ ID No: 128 <u>765</u>)
128	c cgc ggg cat aac cag tT (SEQ ID No: 129 <u>766</u>)
129	cc cag ttc gtg agg ttc A (SEQ ID No: 130 <u>767</u>)
130	c cgg gag aca cag atc tG (SEQ ID No: 131 <u>768</u>)
131	g gct cag atc acc cag cA (SEQ ID No: 132 <u>769</u>)
132	acc tac ctg gag ggc aC (SEQ ID No: 133 <u>770</u>)
133	cac tcc atg agg tat ttc C (SEQ ID No: 134 <u>771</u>)
134	gac ccc cca aag aca caT (SEQ ID No: 135 <u>772</u>)
135	gag aca cag atc tcc aag aT (SEQ ID No: 136 <u>773</u>)
136	gg gag gcg gcc cgt C (SEQ ID No: 137 <u>774</u>)
137	gcg ccg tgg ata gag caA (SEQ ID No: 138 <u>775</u>)
138	g acc aac aca cag act tac A (SEQ ID No: 139 <u>776</u>)
139	ac acc ctc cag aat atg taT (SEQ ID No: 140 <u>777</u>)
140	g gag ccc cgc ttc att G (SEQ ID No: 141 <u>778</u>)
141	g gat tac atc gcc ctg aaG (SEQ ID No: 142 <u>779</u>)
142	c acc ctc cag agg atg tG (SEQ ID No: 143 <u>780</u>)
143	gcg ccg tgg ata gag caA (SEQ ID No: 144 <u>781</u>)
144	cga gag aac ctg cgc aC (SEQ ID No: 145 <u>782</u>)
145	gag aac ctg cgc acc gC (SEQ ID No: 146 <u>783</u>)
146	g tct cac acc ctc cag aaT (SEQ ID No: 147 <u>784</u>)
147	cag gag ggg ccg gag C (SEQ ID No: 148 <u>785</u>)
148	ctg ggc ttc tac cct gG (SEQ ID No: 149 <u>786</u>)
149	ca cag act gac cga gag G (SEQ ID No: 150 <u>787</u>)
150	c gcc gcg gac acg gcA (SEQ ID No: 151 <u>788</u>)

Table 5-6

Probe No.	Base Sequence
151	ctg ctc tgg ggg gca G (SEQ ID No: 152 789)
152	c cag agc gag gcc ggT (SEQ ID No: 153 790)
153	c tcc gtg tcc cgg ccT (SEQ ID No: 154 791)
154	cgc ggg tac cac cag C (SEQ ID No: 155 792)
155	tg acc gag acc tgg gcT (SEQ ID No: 156 793)
156	cag gag ggg ccg gag tT (SEQ ID No: 157 794)
157	cga gag agc ctg cgg aC (SEQ ID No: 158 795)
158	c acg gcg gct cag atc T (SEQ ID No: 159 796)
159	cg gag cag ctg aga gcT (SEQ ID No: 160 797)
160	gg ccc gac ggg cgc T (SEQ ID No: 161 798)
161	cgc ggg cat gac cag tT (SEQ ID No: 162 799)
162	cc atg tcc cgg ccc gT (SEQ ID No: 163 800)
163	g acc gcg gcg gac acC (SEQ ID No: 164 801)
164	c tgc gac gtg ggg ccC (SEQ ID No: 165 802)
165	t ccg agg acg gag ccC (SEQ ID No: 166 803)
166	gag ccc cgg gcg ccA (SEQ ID No: 167 804)
167	cc gcg agt ccg agg aC (SEQ ID No: 168 805)
168	cac atc atc cag agg atg tT (SEQ ID No: 169 806)
169	ca cag act tac cga gag aA (SEQ ID No: 170 807)
170	c atg tac ggc tgc gac C (SEQ ID No: 171 808)
171	ctg cgg aac ctg cgc gA (SEQ ID No: 172 809)
172	cat gac cag tcc gcc tG (SEQ ID No: 173 810)
173	c acc atc cag agg atg tC (SEQ ID No: 174 811)
174	gac ctg agc tcc tgg acA (SEQ ID No: 175 812)
175	cga gag agc ctg cgc aC (SEQ ID No: 176 813)
176	g cag gag ggg ccg gG (SEQ ID No: 177 814)
177	ga acc tac ctg gag ggc A (SEQ ID No: 178 815)
178	a acc tac ctg gag ggc aT (SEQ ID No: 179 816)
179	c tgg acc gcg gcg gaG (SEQ ID No: 180 817)
180	ta gag cag gag ggg ccA (SEQ ID No: 181 818)

Table 5-7

Probe No.	Base Sequence
181	tct cac act tgg cag acG (SEQ ID No: 182819)
182	g gcg gag cag cgg aga A (SEQ ID No: 183820)
183	cgg ccc ggc cgc ggA (SEQ ID No: 184821)
184	gg tct cac acc ctc caC (SEQ ID No: 185822)
185	c cgc ggg tat aac cag ttA (SEQ ID No: 186823)
186	g gcg gag cag tgg aga A (SEQ ID No: 187824)
187	gaa tat tgg gac cgg gaG (SEQ ID No: 188825)
188	gcg gct cag atc acc cG (SEQ ID No: 189826)
189	cac acc ctc cag agc aC (SEQ ID No: 190827)
190	ag tgg gag gcg gcc cT (SEQ ID No: 191828)
191	g acc gag acc tgg gcG (SEQ ID No: 192829)
192	c gcc acg agt ccg agg A (SEQ ID No: 193830)
193	g atc tcc cag cgc aag tT (SEQ ID No: 194831)
194	tg gag gcg gcc cgt gT (SEQ ID No: 195832)
195	tg acc gag acc tgg gcl (SEQ ID No: 196833)
196	g cgc tcc tgg acc gcG (SEQ ID No: 197834)
197	ag ggc gag tgc gtg gaT (SEQ ID No: 198835)
198	gg tat ttc cac acc gcc A (SEQ ID No: 199836)
199	c cgc ggg cat aac cag A (SEQ ID No: 200837)
200	ccg gag tat tgg gac cC (SEQ ID No: 201838)
201	gg tct cac atc atc cag G (SEQ ID No: 202839)
202	c gcc tac gac ggc aag A (SEQ ID No: 203840)
203	cgc ggg cat aac cag tC (SEQ ID No: 204841)
204	cc ggg tct cac act tgG (SEQ ID No: 205842)
205	c act tgg cag agg atg taT (SEQ ID No: 206843)
206	ga gag agc ctg cgg aaG (SEQ ID No: 207844)
207	c ggg aag gac acg ctg C (SEQ ID No: 208845)
208	c acg ctg cag cgc gcG (SEQ ID No: 209846)
209	cc atc tct gac cat gag gT (SEQ ID No: 210847)
210	cgg gag aca cag atc tcG (SEQ ID No: 211848)

Table 5-8

Probe No.	Base Sequence
211	g gag gcg gcc cgt gtC (SEQ ID No: 212849)
212	a gag aac ctg cgc acc G (SEQ ID No: 213850)
213	gg gag ccc cgc ttc atT (SEQ ID No: 214851)
214	ctg cgc acc ccg ctc C (SEQ ID No: 215852)
215	gg ccg gag tat tgg gaG (SEQ ID No: 216853)
216	c cgc ggg cat aac cag G (SEQ ID No: 217854)
217	ggc gag tgc gtg gag tC (SEQ ID No: 218855)
218	ccg gcg ccg tgg gtG (SEQ ID No: 219856)
219	ga gag aac ctg cgg atc G (SEQ ID No: 220857)
220	gtg gac gac acg ctg ttG (SEQ ID No: 221858)
221	tg gag ggc ctg tgc gC (SEQ ID No: 222859)
222	gac ggc aag gat tac atc A (SEQ ID No: 223860)
223	c cgc ggg tat aac cag tT (SEQ ID No: 224861)
224	ctc cgc ggg tat aac cG (SEQ ID No: 225862)
225	gcg gag cag gac aga gT (SEQ ID No: 226863)
226	gag aca cag aag tac aag C (SEQ ID No: 227864)
227	cgc cag gca cag act gG (SEQ ID No: 228865)
228	t gtg gtc gct gct gtg G (SEQ ID No: 229866)
229	c ctg cgg aac ctg ctc C (SEQ ID No: 230867)
230	aga acc ttc cag aag tgg A (SEQ ID No: 231868)
231	ag ccc cgc ttc atc tcC (SEQ ID No: 232869)
232	c cgc ggg tat aac cag ttA (SEQ ID No: 233870)
233	ggc ctg tgc gtg gag G (SEQ ID No: 234871)
234	cgg atc gcg ctc cgc G (SEQ ID No: 235872)
235	ttc gcc tac gac ggc aaA (SEQ ID No: 236873)
236	ctc ctc cgc ggg cat aaA (SEQ ID No: 237874)
237	g cgt ctc ctc cgc ggT (SEQ ID No: 238875)
238	c ggg cgc ctc ctc cC (SEQ ID No: 239876)
239	g agt ccg agg acg gag A (SEQ ID No: 240877)
240	ata gag cag gag ggg cG (SEQ ID No: 241878)

Table 5-9

Probe No.	Base Sequence
241	cc aga cca gca gga gat G (SEQ ID No: 242879)
242	cag cat gag ggg ctg cT (SEQ ID No: 243880)
243	cag act tac cga gag aac T (SEQ ID No: 244881)
244	gc gac gcc gcg agt cA (SEQ ID No: 245882)
245	c cgc ggg gag ccc cC (SEQ ID No: 246883)
246	cga gag agc ctg cgg aT (SEQ ID No: 247884)
247	gag agc ctg cgg atc gC (SEQ ID No: 248885)
248	g gca cag act gac cga gT (SEQ ID No: 249886)
249	g acc gcc gcg gac acC (SEQ ID No: 250887)
250	g cag gag ggg ccg gC (SEQ ID No: 251888)
251	cc gcg agt ccg aga gG (SEQ ID No: 252889)
252	gg tct cac act tgg cag aT (SEQ ID No: 253890)
253	acg gca ccc cga acc C (SEQ ID No: 254891)
254	ctc ctc ctg ctg ctc tG (SEQ ID No: 255892)
255	ag aca cag aag tac aag gG (SEQ ID No: 256893)
256	gg tct cac atc atc cag gT (SEQ ID No: 257894)
257	gc ggg cat gac cag tcT (SEQ ID No: 258895)
258	g acc gcg gcg gac acA (SEQ ID No: 259896)
259	g ccg gag tat tgg gac G (SEQ ID No: 260897)
260	c ctc ctc cgc ggg tat A (SEQ ID No: 261898)
261	c acg gcg gct cag atc aT (SEQ ID No: 262899)
262	tg ccg atc gcg ctc cC (SEQ ID No: 263900)
263	g ccg gag tat tgg gac gA (SEQ ID No: 264901)
264	g gag gcg gcc cgt gC (SEQ ID No: 265902)
265	c gac gcc gcg agt ccA (SEQ ID No: 266903)
266	gtc acc gta gct gtg gtC (SEQ ID No: 267904)
267	g tgt agg agg aag agt tcT (SEQ ID No: 268905)
268	c aga gcc tac ctg gag gA (SEQ ID No: 269906)
269	gtc atc gga gct gtg gtT (SEQ ID No: 270907)

Table 6-1

Probe No.	Base Sequence
0	c acc tcc Gtg tcc cgg (SEQ ID No: 271 908)
1	c ctc cag agC atg tac gg (SEQ ID No: 272 909)
2	c cgc ggg Cat gac cag (SEQ ID No: 273 910)
3	cat gac cag Tac gcc tac (SEQ ID No: 274 911)
4	g gag cag cGg aga gcc (SEQ ID No: 275 912)
5	gag cag cgG aga gcc ta (SEQ ID No: 276 913)
6	g gag ggc gAg tgc gtg (SEQ ID No: 277 914)
7	c gtg gag tGg ctc cgc (SEQ ID No: 278 915)
8	ac aag ctg Gag cgc gct (SEQ ID No: 279 916)
9	ctc cgc agG tac ctg ga (SEQ ID No: 280 917)
10	g gac gac acG cag ttc gt (SEQ ID No: 281 918)
11	aag acc aac Aca cag act g (SEQ ID No: 282 919)
12	g gag cag gaC aga gcc ta (SEQ ID No: 283 920)
13	cgc ggg cat Aac cag tac (SEQ ID No: 284 921)
14	cag tcc acc Atc ccc atc (SEQ ID No: 285 922)
15	c ctc cag agG atg tac gg (SEQ ID No: 286 923)
16	aca cag atc tTc aag acc aa (SEQ ID No: 287 924)
17	t gac cag tCc gcc tac g (SEQ ID No: 288 925)
18	ca cag atc tGc aag gcc C (SEQ ID No: 289 926)
19	c cga gag aAc ctg cgg a (SEQ ID No: 290 927)
20	tct cac atc Atc cag agg a (SEQ ID No: 291 928)
21	g agg atg taT ggc tgc ga (SEQ ID No: 292 929)
22	c tgc gac Ctg ggg ccc (SEQ ID No: 293 930)
23	ctg ggg ccC gac ggg (SEQ ID No: 294 931)
24	g tac aag cGc cag gca c (SEQ ID No: 295 932)
25	ag gca cag Gct gac cga (SEQ ID No: 296 933)
26	t gac cga gTg agc ctg c (SEQ ID No: 297 934)
27	gg tct cac aTc atc cag ag (SEQ ID No: 298 935)
28	c atc cag agG atg tac gg (SEQ ID No: 299 936)
29	tc cgc ggg Tat gac cag (SEQ ID No: 300 937)
30	aag acc aac Aca cag act ta (SEQ ID No: 301 938)

Table 6-2

Probe No.	Base Sequence
31	aca cag act Tac cga gag a (SEQ ID No: 302939)
32	g gag ggc aCg tgc gtg (SEQ ID No: 303940)
33	ggg aag gaG acg ctg ga (SEQ ID No: 304941)
34	g aag gag aCg ctg gag c (SEQ ID No: 305942)
35	g gag ggc cTg tgc gtg (SEQ ID No: 306943)
36	c gtg gag tCg ctc cgc (SEQ ID No: 307944)
37	c ggg gag cTc cgc ttc (SEQ ID No: 308945)
38	c gcc gcg Aac acg gcg (SEQ ID No: 309946)
39	tg cgc gcc Cac tac aac (SEQ ID No: 310947)
40	g gag ggc Ctg tgc gtg (SEQ ID No: 311948)
41	g gcc cgt gTg gcg gag (SEQ ID No: 312949)
42	g gag cag cTg aga gcc t (SEQ ID No: 313950)
43	ca cag atc tCc aag acc aa (SEQ ID No: 314951)
44	aca cag act Tac cga gag g (SEQ ID No: 315952)
45	c cga gag Gac ctg cgg (SEQ ID No: 316953)
46	cc ctg ctc Cgc tac tac (SEQ ID No: 317954)
47	tat gac cag Gac gcc tac (SEQ ID No: 318955)
48	agg tat ttc Gac acc gcc (SEQ ID No: 319956)
49	c acc gcc Atg tcc cgg (SEQ ID No: 320957)
50	gag ccg cCg gcg ccg (SEQ ID No: 321958)
51	g gag ggc Acg tgc gtg (SEQ ID No: 322959)
52	g agg aag agC tca ggt gg (SEQ ID No: 323960)
53	cc gcg ctc Cgc tac tac (SEQ ID No: 324961)
54	c ctg cgg aTc gcg ctc (SEQ ID No: 325962)
55	g cgg atc gCg ctc cgc (SEQ ID No: 326963)
56	tc gcg ctc Cgc tac tac (SEQ ID No: 327964)
57	g aag gac aCg ctg gag c (SEQ ID No: 328965)
58	ac aca cag aCc ttc aag ac (SEQ ID No: 329966)
59	g acg atg taT ggc tgc ga (SEQ ID No: 330967)
60	gg gac cgg Gac aca cag (SEQ ID No: 331968)
61	ac cac cag Gac gcc tac (SEQ ID No: 332969)

Table 6-3

Probe No.	Base Sequence
62	aac aca cag Gct gac cga (SEQ ID No: 333 970)
63	gcc ctg ggC ttc tac cc (SEQ ID No: 334 971)
64	c acc cag cTc aag tgg g (SEQ ID No: 335 972)
65	ct tgg cag aCg atg tat gg (SEQ ID No: 336 973)
66	t aac cag ttA gcc tac gac (SEQ ID No: 337 974)
67	c tgc gac Ctg ggg ccg (SEQ ID No: 338 975)
68	a tct tcc caA tcc acc gtc (SEQ ID No: 339 976)
69	g aga gcc tGc ctg gag g (SEQ ID No: 340 977)
70	acc ctc cag Tgg atg tat g (SEQ ID No: 341 978)
71	a gca gga gaG aga acc ttc (SEQ ID No: 342 979)
72	a tgg gag ccA tct tcc ca (SEQ ID No: 343 980)
73	tc tac acc Gcc gtg tcc (SEQ ID No: 344 981)
74	tcc atg agg Cat ttc tac ac (SEQ ID No: 345 982)
75	g ggg ccg gaA tat tgg ga (SEQ ID No: 346 983)
76	tc cgc aga Cac ctg gag (SEQ ID No: 347 984)
77	g acg ctg Cag cgc gcg (SEQ ID No: 348 985)
78	ctc tcg ggA gcc ctg g (SEQ ID No: 349 986)
79	cgg gcg ccA tgg ata ga (SEQ ID No: 350 987)
80	g gac cgg gaG aca cag at (SEQ ID No: 351 988)
81	cg gag cag Tgg aga gcc (SEQ ID No: 352 989)
82	t cag gac acC gag ctt gt (SEQ ID No: 353 990)
83	c gac ggc aaA gat tac atc (SEQ ID No: 354 991)
84	tgg acc gcG gcg gac a (SEQ ID No: 355 992)
85	c gcc ctg aaT gag gac ct (SEQ ID No: 356 993)
86	cag ttc gtg Cgg ttc gac (SEQ ID No: 357 994)
87	gtg gtc gct Act gtg atg (SEQ ID No: 358 995)
88	ag agg atg tTt ggc tgc g (SEQ ID No: 359 996)
89	ca cag atc tGc aag acc aa (SEQ ID No: 360 997)
90	agg atg gcT ccc cgg g (SEQ ID No: 361 998)
91	tgc gtg gaC ggg ctc c (SEQ ID No: 362 999)
92	gc tcc cac tTc atg agg t (SEQ ID No: 363 1000)

Table 6-4

Probe No.	Base Sequence
93	gcc tcc gcG cag act ta (SEQ ID No: 364 <u>1001</u>)
94	tg gtg gtg cTt tct gga g (SEQ ID No: 365 <u>1002</u>)
95	ac cac ccc Gtc tct gac (SEQ ID No: 366 <u>1003</u>)
96	ac cgg gag aTa cag atc tc (SEQ ID No: 367 <u>1004</u>)
97	g agg atg gCg ccc cgg (SEQ ID No: 368 <u>1005</u>)
98	g agg atg tCt ggc tgc g (SEQ ID No: 369 <u>1006</u>)
99	c gcg gac aAg gcg gct (SEQ ID No: 370 <u>1007</u>)
100	cc ctc cag aCg atg tac g (SEQ ID No: 371 <u>1008</u>)
101	c ctc cag acG atg tac gg (SEQ ID No: 372 <u>1009</u>)
102	aac ctg cgC acc gcg c (SEQ ID No: 373 <u>1010</u>)
103	ag gac ctg Agc tcc tgg (SEQ ID No: 374 <u>1011</u>)
104	gc ttc atc Gca gtg ggc (SEQ ID No: 375 <u>1012</u>)
105	atg gcg ccC cgg gcg (SEQ ID No: 376 <u>1013</u>)
106	c gac gcc Acg agt ccg (SEQ ID No: 377 <u>1014</u>)
107	cag ctg aga Acc tac ctg (SEQ ID No: 378 <u>1015</u>)
108	cc aac aca cGg act tac c (SEQ ID No: 379 <u>1016</u>)
109	ggg aag gaG acg ctg ca (SEQ ID No: 380 <u>1017</u>)
110	ac gac acg cTg ttc gtg a (SEQ ID No: 381 <u>1018</u>)
111	ct tac cga gTg aac ctg c (SEQ ID No: 382 <u>1019</u>)
112	c cga gtg aAc ctg cgg a (SEQ ID No: 383 <u>1020</u>)
113	at aac cag tTc gcc tac ga (SEQ ID No: 384 <u>1021</u>)
114	gtg agg ttc Aac agc gac (SEQ ID No: 385 <u>1022</u>)
115	c acc cag cAc aag tgg g (SEQ ID No: 386 <u>1023</u>)
116	cg gag cag cig aga acc t (SEQ ID No: 387 <u>1024</u>)
117	agg tat ttc Cac acc tcc g (SEQ ID No: 388 <u>1025</u>)
118	a aag aca caT gtg acc cac (SEQ ID No: 389 <u>1026</u>)
119	atc tcc aag aTc aac aca ca (SEQ ID No: 390 <u>1027</u>)
120	g gcc cgt Cag gcg gag (SEQ ID No: 391 <u>1028</u>)
121	g ata gag caA gag ggg cc (SEQ ID No: 392 <u>1029</u>)
122	cag act tac Aga gag agc c (SEQ ID No: 393 <u>1030</u>)
123	g aat atg taT ggc tgc gac (SEQ ID No: 394 <u>1031</u>)

Table 6-5

Probe No.	Base Sequence
124	cgc ttc att Gca gtg ggc (SEQ ID No: 395 <u>1032</u>)
125	gcc ctg aaG gag gac ct (SEQ ID No: 396 <u>1033</u>)
126	ct tac cga gTg agc ctg c (SEQ ID No: 397 <u>1034</u>)
127	g agg atg tGc ggc tgc g (SEQ ID No: 398 <u>1035</u>)
128	g ata gag caA gag ggg cc (SEQ ID No: 399 <u>1036</u>)
129	ca cag atc tGc aag gcc a (SEQ ID No: 400 <u>1037</u>)
130	c ctg cgc aCc gcg ctc (SEQ ID No: 401 <u>1038</u>)
131	cgc acc gCg ctc cgc (SEQ ID No: 402 <u>1039</u>)
132	c ctc cag aaT atg tat ggc (SEQ ID No: 403 <u>1040</u>)
133	gg ccg gag Cat tgg gac (SEQ ID No: 404 <u>1041</u>)
134	tc tac cct gGg gag atc a (SEQ ID No: 405 <u>1042</u>)
135	g gac acg gcA gct cag at (SEQ ID No: 406 <u>1043</u>)
136	g ggg gca Gtg gcc ctg (SEQ ID No: 407 <u>1044</u>)
137	gag gcc ggT tct cac ac (SEQ ID No: 408 <u>1045</u>)
138	tcc cgg ccT ggc cgc (SEQ ID No: 409 <u>1046</u>)
139	ac cac cag Cac gcc tac (SEQ ID No: 410 <u>1047</u>)
140	acc tgg gcT ggc tcc c (SEQ ID No: 411 <u>1048</u>)
141	g gtc acg gAg ccc cga (SEQ ID No: 412 <u>1049</u>)
142	g ccg gag tTt tgg gac c (SEQ ID No: 413 <u>1050</u>)
143	c ctc cag aaT atg tac ggc (SEQ ID No: 414 <u>1051</u>)
144	C ctg cgg aCc ctg ctc (SEQ ID No: 415 <u>1052</u>)
145	ct cag atc Tcc cag cgc (SEQ ID No: 416 <u>1053</u>)
146	g ctg aga gcT tac ctg ga (SEQ ID No: 417 <u>1054</u>)
147	c ggg cgc Ttc ctc cgc (SEQ ID No: 418 <u>1055</u>)
148	at gac cag tTc gcc tac g (SEQ ID No: 419 <u>1056</u>)
149	cgc ggg cat Aac cag ttc (SEQ ID No: 420 <u>1057</u>)
150	cgg ccc gTc cgc ggg (SEQ ID No: 421 <u>1058</u>)
151	gcg gac acC gcg gct c (SEQ ID No: 422 <u>1059</u>)
152	tct cac atc Atc cag agc a (SEQ ID No: 423 <u>1060</u>)
153	gtg ggg ccC gac ggg (SEQ ID No: 424 <u>1061</u>)
154	acg gag ccC cgg gcg (SEQ ID No: 425 <u>1062</u>)

Table 6-6

Probe No.	Base Sequence
155	t ccg agg aCg gag ccc (SEQ ID No: 426 <u>1063</u>)
156	ac ctg cgc gAc tac tac a (SEQ ID No: 427 <u>1064</u>)
157	g tcc gcc tGc gac ggc (SEQ ID No: 428 <u>1065</u>)
158	tcc tgg acA gcg gcg g (SEQ ID No: 429 <u>1066</u>)
159	c cga gag aAc ctg cgc a (SEQ ID No: 430 <u>1067</u>)
160	g ggg ccg gGa tat tgg g (SEQ ID No: 431 <u>1068</u>)
161	tg gag ggc Atg tgc gtg (SEQ ID No: 432 <u>1069</u>)
162	g gag ggc aTg tgc gtg g (SEQ ID No: 433 <u>1070</u>)
163	gcg gcg gaG acc gcg (SEQ ID No: 434 <u>1071</u>)
164	g gag ggg ccA gaa tat tg (SEQ ID No: 435 <u>1072</u>)
165	ct tgg cag aCg atg tac g (SEQ ID No: 436 <u>1073</u>)
166	t tgg cag acG atg tac gg (SEQ ID No: 437 <u>1074</u>)
167	cag cgg aga Acc tac ctg (SEQ ID No: 438 <u>1075</u>)
168	ggc cgc ggA gag ccc (SEQ ID No: 439 <u>1076</u>)
169	c acc ctc caC agg atg ta (SEQ ID No: 440 <u>1077</u>)
170	cg gag cag Tgg aga acc (SEQ ID No: 441 <u>1078</u>)
171	cag tgg aga Acc tac ctg (SEQ ID No: 442 <u>1079</u>)
172	g atc acc cGg cgc aag t (SEQ ID No: 443 <u>1080</u>)
173	c cag agc aCg tac ggc t (SEQ ID No: 444 <u>1081</u>)
174	g gcg gcc cTt gtg gcg (SEQ ID No: 445 <u>1082</u>)
175	acc tgg gcG ggc tcc c (SEQ ID No: 446 <u>1083</u>)
176	gtc acg gcA ccc cga ac (SEQ ID No: 447 <u>1084</u>)
177	agg tat ttc Cac acc gcc (SEQ ID No: 448 <u>1085</u>)
178	gt ccg agg Aag gag ccg (SEQ ID No: 449 <u>1086</u>)
179	g cgc aag tTg gag gcg g (SEQ ID No: 450 <u>1087</u>)
180	acc tgg gcT ggc tcc c (SEQ ID No: 451 <u>1088</u>)
181	tgc gtg gaT tgg ctc cg (SEQ ID No: 452 <u>1089</u>)
182	cat aac cag Aac gcc tac g (SEQ ID No: 453 <u>1090</u>)
183	t tgg gac cCg gag aca c (SEQ ID No: 454 <u>1091</u>)
184	atc atc cag Gtg atg tat gg (SEQ ID No: 455 <u>1092</u>)
185	gac ggc aag Aat tac atc g (SEQ ID No: 456 <u>1093</u>)

Table 6-7

Probe No.	Base Sequence
186	at aac cag tCc gcc tac g (SEQ ID NO: 457 <u>1094</u>)
187	ctg cgg aaG ctg cgc g (SEQ ID No: 458 <u>1095</u>)
188	t cac act tgG cag agg atg (SEQ ID No: 459 <u>1096</u>)
189	c acg ctg Cag cgc gcg (SEQ ID No: 460 <u>1097</u>)
190	ac cat gag gTc acc ctg a (SEQ ID No: 461 <u>1098</u>)
191	a cag atc tcG aag acc aac (SEQ ID No: 462 <u>1099</u>)
192	gcc cgt gtC gcg gag c (SEQ ID No. 463 <u>1100</u>)
193	g cgc acc Gcg ctc cg (SEQ ID No: 464 <u>1101</u>)
194	c cgc ttc atT gca gtg gg (SEQ ID No: 465 <u>1102</u>)
195	c ctg cgc aCc ccg ctc (SEQ ID No: 466 <u>1103</u>)
196	cc ccg ctc Cgc tac tac (SEQ ID No: 467 <u>1104</u>)
197	g tat tgg gaG cgg gag ac (SEQ ID No: 468 <u>1105</u>)
198	gc ggg cat Aac cag gac (SEQ ID No: 469 <u>1106</u>)
199	cat aac cag Gac gcc tac (SEQ ID No: 470 <u>1107</u>)
200	ctc cgc ggg Tat aac cag (SEQ ID No: 471 <u>1108</u>)
201	ccg tgg gtG gag cag g (SEQ ID No: 472 <u>1109</u>)
202	g cgg atc Gcg ctc cgc (SEQ ID No: 473 <u>1110</u>)
203	c acg ctg ttG gtg agg tt (SEQ ID No: 474 <u>1111</u>)
204	c ctg tgc gCg gag tcg (SEQ ID No: 475 <u>1112</u>)
205	gat tac atc Acc ctg aac g (SEQ ID No: 476 <u>1113</u>)
206	gg tat aac cGg tta gcc ta (SEQ ID No: 477 <u>1114</u>)
207	ag gac aga gTc tac ctg g (SEQ ID No: 478 <u>1115</u>)
208	aag tac aag Cgc cag gca (SEQ ID No: 479 <u>1116</u>)
209	ca cag act gGc cga gtg a (SEQ ID No: 480 <u>1117</u>)
210	gct gct gtg Gtg tgt agg (SEQ ID No: 481 <u>1118</u>)
211	aac ctg ctc Cgc tac tac (SEQ ID No: 482 <u>1119</u>)
212	cag aag tgg Aca gct gtg (SEQ ID No: 483 <u>1120</u>)
213	cag cgc gcG gac ccc (SEQ ID No: 484 <u>1121</u>)
214	c ttc atc tcC gtg ggc ta (SEQ ID No: 485 <u>1122</u>)
215	c gtg gag Ggg ctc cgc (SEQ ID No: 486 <u>1123</u>)
216	cg ctc cgc Gac tac aac (SEQ ID No: 487 <u>1124</u>)

Table 6-8

Probe No.	Base Sequence
217	c ggg cat aaA cag tac gc (SEQ ID No: 488 <u>1125</u>)
218	c ctc cgc ggT tat aac ca (SEQ ID No: 489 <u>1126</u>)
219	c ctc ctc cCc ggg cat (SEQ ID No: 490 <u>1127</u>)
220	g acg gag Acc cgg gcg (SEQ ID No: 491 <u>1128</u>)
221	g gag ggg cGg gag tat t (SEQ ID No: 492 <u>1129</u>)
222	gca gga gat Gga acc ttc (SEQ ID No: 493 <u>1130</u>)
223	g ggg ctg cTg aag ccc (SEQ ID No: 494 <u>1131</u>)
224	cgg gtc aCg gcg ccc (SEQ ID No: 495 <u>1132</u>)
225	t ccg agg aCg gag ccg (SEQ ID No: 496 <u>1133</u>)
226	cga gag aac Ttg cgg atc (SEQ ID No: 497 <u>1134</u>)
227	c gcg agt cAg agg acg g (SEQ ID No: 498 <u>1135</u>)
228	g gag ccc cCc ttc atc g (SEQ ID No: 499 <u>1136</u>)
229	g ggg ccg gCg tat tgg (SEQ ID No: 500 <u>1137</u>)
230	t ccg aga gGg gag ccg (SEQ ID No: 501 <u>1138</u>)
231	ct tgg cag aTg atg tat gg (SEQ ID No: 502 <u>1139</u>)
232	g tac aag gGc cag gca c (SEQ ID No: 503 <u>1140</u>)
233	tc atc cag gTg atg tat gg (SEQ ID No: 504 <u>1141</u>)
234	t gac cag tcT gcc tac ga (SEQ ID No: 505 <u>1142</u>)
235	gcg gac acA gcg gct c (SEQ ID No: 506 <u>1143</u>)
236	tat tgg gac Ggg gag aca (SEQ ID No: 507 <u>1144</u>)
237	cgc ggg tat Aac cag tac (SEQ ID No: 508 <u>1145</u>)
238	ct cag atc aTc cag cgc a (SEQ ID No: 509 <u>1146</u>)
239	c gcg ctc cCc tac tac a (SEQ ID No: 510 <u>1147</u>)
240	at tgg gac gAg gag aca c (SEQ ID No: 511 <u>1148</u>)
241	gcc cgt gCg gcg gag (SEQ ID No: 512 <u>1149</u>)
242	g aag gag aCg ctg cag c (SEQ ID No: 513 <u>1150</u>)
243	gcg agt ccA aga ggg ga (SEQ ID No: 514 <u>1151</u>)
244	gct gtg gtC gct gtg gt (SEQ ID No: 515 <u>1152</u>)
245	c ctg gag gAc ctg tgc g (SEQ ID No: 516 <u>1153</u>)
246	a gct gtg gtT gct act gtg (SEQ ID No: 517 <u>1154</u>)

Table 7

Allele-Probe List 1

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	B*0703	11								
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	B*0706	13								
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	B*0708	16	17							
	B*0709	18								
	B*0710	19								
	B*0711	20	18							
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	B*0713	25	26	27						
	B*0714	28	21	29	30					
	B*0715	31	27							
	B*0716	11	32							
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	B*0718	28	22							
	B*0719	12	34	35	36					
	B*0720	37	38							
	B*0721	39								
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	B*0723	41								
	B*0724	42								

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B*0731 53 34
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B*3502 160

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- B*3519 119 16 17 32 21 22 23 24 18 114 163 43 64 37 113 83
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- 25 B*3526 81 42 37 83
- B*3527 16 17 169 21 22 23 24 18 114 163 43 64 37 113 83
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- B*5121 194 83 32 76
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- B*5123 194 42 36
- B*5124 194 79 16 56 65 59 13 42 35 76
- B*5126 220
- B*5128 221
- 25 B*5129 194 16 56 65 76 95
- B*5130 95 222
- B*5131 194 83 41 42 76

- B*5132 223
- B*5133 92 76
- B*5134 194 79 16 56 65 59 83 103 151 42
- B*520101 224 43 56 65 42 76 95 52
- 5 B*520102 194 43 56 65 42 76 95 52
- B*520103 225 80 43 56 65 59 83 42 35 76
- B*520104 226
- B*5202 194 97 80 43 56 65 59 83 103 42 35 76
- B*5203 194 43 41 42 35
- 10 B*5204 227
- B*5205 228
- B*5301 30 56 20 21 17 103 41 42 35 95 52
- B*5302 56 17 41 42 35 76
- B*5303 45 42 35 77
- 15 B*5304 54 56 23 148 103 151 41 42 35 77
- B*5305 30 54 55 56 20 21 22 23 17 103 151 41 42 35 77
- B*5306 194 17 103 42 35 76
- B*5307 98 42 35
- B*5308 30 19 54 55 56 20 21 22 23 17 103 151 42 35 77
- 20 B*5309 102 17 151 41 42 40 35 77
- B*5401 86 52
- B*5402 117 86 32
- B*5501 176 32 87 52
- B*5502 176 41 32 87 52
- 25 B*5503 26 66 32 77
- B*5504 49 104 10 13 151 41 42 32 109 77
- B*5505 229

B*5507 49 230 66 77
B*5508 104 10 15 13 151 41 42 35 77
B*5509 49 104 10 65 59 67 66 151
B*5510 65 59 67 66 41 32
5 B*5511 231 32 77
B*5512 176 19 41 32 87 52
B*5601 176 59 41 42 35 87 52
B*5602 176 41 42 35 87 52
B*5603 176 81 82 87 52
10 B*5604 104 10 66 41 42 35
B*5605 194 10 65 59 83 103 42 35 76
B*5606 194 155 79 65 59 83 103 42 35 76
B*5607 10 130 53 65 59 67 66 41 42 35
B*5608 232 42 35 77
15 B*5609 104 10 20 21 22 23 17 103 151 41 42 35 77
B*5610 49 104 10 67 66 41 32
B*5611 176 23 151 41 42 35 77 63
B*570101 233 17 42 68
B*570102 234
20 B*5702 13 68
B*570301 13 42 68
B*570302 235
B*5704 184 47 41 77
B*5705 236 200 237 41 35
25 B*5706 238
B*5707 184 36 77
B*5708 239

B*5709 184 12 77
B*5801 236 20 87 52
B*5802 70 52
B*5804 240
5 B*5805 241
B*5806 70 35
B*5807 70 36
B*5901 176 56 41 32 87 52
B*670101 75 15 116 107 71 72
10 B*670102 15 149 113 41 116 107 32 242
B*6702 243
B*7301 244
B*7801 194 16 65 42 76 95 52
B*780201 16 31 65 42 76 95 52
15 B*780202 194 79 16 31 65 59 83 103 42 35 76
B*7803 194 89 11 65 59 83 103 42 35 76
B*7804 83 103 41 42 35 95
B*7805 155 154 80 43 31 65 59 83 42 35 76
B*8101 136 212
20 B*8201 245
B*8202 246
B*8301 136 49 20 29 47 12 35 36 77

(Example 5)

Probes for identification of HLA-C allele

Extraction of DNA from 1 ml of human blood was performed using GFX Genomic Blood DNA Purification
 5 Kit from Amersham Biosciences in the same manner as in Example 1.

Next, quantitative PCR was carried out in the same manner as in Example 1 except that probes in the probe list in Tables 9-1 to 9-4 were used
 10 respectively, and 3 μ l of the mixed primers consisting of 1 μ l each of the respective solutions of the following primers (10 pmol/ μ l) was used:
 AAACACGGTCACCTCAGGGGGAT (SEQ ID NO: ~~340~~1992)
 GGCCTGAGTGTGGTTGGAACG (SEQ ID NO: ~~341~~1993)
 15 CCAGCTCGTAGTTGTGTCTGCA (SEQ ID NO: ~~342~~1994).

After PCR amplification, the sample was identified being Cw*120202, referring to Amp Plot and Dissociation curves on a display of 5700 software and the allele-probe list in Tables 11-1 to 11-4.

20 (Example 6)

Extraction of DNA from 1 ml of human blood was performed in the same manner as in Example 1. PCR of human HLA-C was then performed in the same manner as in Example 2 except that 6 μ l of the mixed primer
 25 consisting of 1 μ l each of the solutions containing the following sequences at 10 pmol/ μ l respectively and 9 μ l of ultra pure water was used.

AAACACGGTCACCTCAGGGGGAT (SEQ ID NO: ~~340~~1992)

GGCCTGAGTGTGGTTGGAACG (SEQ ID NO: ~~341~~1993)

CCAGCTCGTAGTTGTGTCTGCA (SEQ ID NO: ~~342~~1994)

CCATGTGTCAACTTATGCC (SEQ ID NO: ~~343~~1995)

5 AGAATTACCTTTTCCAG (SEQ ID NO: ~~344~~1996)

AGAATTACGTTTTTCCAG (SEQ ID NO: ~~345~~1997)

At the same time, a DNA microarray was prepared to identify the allele in the specimen in the same manner as in Example 2. Probes in Tables 10-1 to 10-4 were used for the probe spots respectively.

Then, hybridization and fluorescence determination was performed using the above-prepared sample and the DNA microarray in the same manner as in Example 2 and the sample was identified as Cw*120202 referring to the probe-allele list in Tables 12-1 to 12-4.

Allele list

Cw*0102 :

20 atgcgggtcatggcgccccgaaccctcatcctgctgctctcgggagccctggccctgaccgagacctgggcctgct
cccactocatgaagtatttcttcacatccgtgtcccgccctggccgaggagccccgcttcattcagtgaggcta
cgtggacgacacgcagttcgtgcggttcgacagcgacgcccgcgagtcgagaggggagccgcccggcgccgtgggtg
gagcaggaggggcccggagtattgggaccgggagacacagaagtacaagcgccaggcacagactgaccgagttagcc
tgcggaacctgcgcggctactacaaccagagcgaggccgggtctcacaccctccagtggatgtGtggtcgacct
25 ggggcccgcaggcgccctcctccgcccgtatgaccagtAcgcctacgacggcaaggattacatcgccctgaacgag
gacctgcgctcctggaccgccgggacacGcggtcagatcaccagcgcaagtgggaggcgcccgtaggaggc
agcagcggagagcctacctggagggcacgtgctggagtggctccgcagatactggagaacgggaaggagacgct

gcagcgcgcggaacacccaaagacacacgtgacccaccatcccgtctctgaccatgaggccaccctgaggtgctgg
 gccctgggcttctaccctgcggagatcacactgacctggcagtgggatggggaggaccaaactcaggacaccgagc
 ttgtggagaccaggccagcaggagatggaaccttcagaagtgggcagctgtgAtggtgccttctggagaagagca
 gagatacacgtgccatgtgcagcacgaggggctgccggagcccctcacctgagatgggagccgtcttcccagccc
 5 accatccccatcgtgggcatcgttgctggcctggctgtcctggtgtcctagctgtcctaggagctgtggtggctg
 ttgtgatgtgtaggaggaagagctcaggtggaaaaggaggagctgctctcaggctgcgtccagcaacagtgccca
 gggctctgatgagtctctcatcgctttaa (SEQ ID NO:11653) ;

Cw*0103 :

atgcgggtcatggcgccccgaacctcatcctgctgtctcoggagccctggccctgaccgagacctgggcctgct
 10 cccactccatgaagtatttcttcacatccgtgtcccgccctggccgcggagagccccgcttcatctcagtgggcta
 cgtggacgacacgcagttcgtgcggttcgacagcgacgccgcgagtcgagaggggagccgcgggcccgtgggtg
 gagcaggaggggcccggagtattgggaccgggagacacagaagtacaagcgccaggcacagactgaccgagttagcc
 tgcggaacctgcgcggctactacaaccagagcgaggccgggtctcacaccctccagtggatgtgtggctgcgacct
 ggggcccgcggcgccctcctccgcgggtatAaccagttcgcctacgacggcaaggattacatcgccctgaacgag
 15 gacctgcgctcctggaccgccgcggacaccgcggctcagatcacccagcgcaagtgggagggcccgtgaggcgg
 agcagcggagagcctacctggagggcacgtgcgtggagtggctccgcagatacctggagaacgggaaggagacgct
 gcagcgcgcggaacacccaaagacacacgtgacccaccatcccgtctctgaccatgaggccaccctgaggtgctgg
 gccctgggcttctaccctgcggagatcacactgacctggcagtgggatggggaggaccaaactcaggacaccgagc
 ttgtggagaccaggccagcaggagatggaaccttcagaagtgggcagctgtgatggtgccttctggagaagagca
 20 gagatacacgtgccatgtgcagcacgaggggctgccggagcccctcacctgagatgggagccgtcttcccagccc
 accatccccatcgtgggcatcgttgctggcctggctgtcctggtgtcctagctgtcctaggagctgtggtggctg
 ttgtgatgtgtaggaggaagagctcaggtggaaaaggaggagctgctctcaggctgcgtccagcaacagtgccca
 gggctctgatgagtctctcatcgctttaa (SEQ ID NO:21654) ;

Cw*0104 :

atgcgggtcatggcgccccgaacctcatcctgctgtctcoggagccctggccctgaccgagacctgggcctgct
 25 cccactccatgaagtatttcttcacatccgtgtcccgccctggccgcggagagccccgcttcatctcagtgggcta
 cgtggacgacacgcagttcgtgcggttcgacagcgacgccgcgagtcgagaggggagccgcgggcccgtgggtg

gagcaggaggggcccggagtattgggaccgggagacacagaagtacaagcgccaggcacagactgaccgagttagcc
 tgcggaacctgcgcggctactacaaccagagcgaggccgggtctcacaccctccagtggatgtgtggctgcgacct
 ggggcccgcacgggcgctcctccgcggtatgaccagtccgcctacgacggcaaggattacatcgccctgaacgag
 gacctgcgctcctggaccgcTgcggacacggcggtcagatcacccagcgcaagtgggaggcgcccgtgaggcgg
 5 agcagtggagagcctacctggagggcacgtgcgtggagtggctccgcagatacctggagaacgggaaggagacgct
 gcagcgcgcggaaacacccaaagacacacgtgaccacccatcccgtctctgaccatgaggccaccctgagggtgctgg
 gccctgggcttctacctgcggagatcacactgacctggcagcgggatggcgaggaccaaactcaggacaccgagc
 ttgtggagaccaggccagcaggagatggaaccttcagaagtgggcagctgtggtgggtgccttctggagaagagca
 gagatacacgtgccatgtgcagcacgaggggctgccAgagccccctaccctgagatgggagccatcttccagccc
 10 accatccccatcgtggcatcgttgctggcctggctgtcctggctgtcctagctgtcctaggagctgtgAtggctg
 ttgtgatgtgtaggaggaagagctcaggtgaaaaggaggaggctgctctcaggctgcgtccagcaacagtgccca
 gggctctgatgagtctctcatcgctttaa (SEQ ID NO: 21655) ;

Cw*0105 :

gctcccaactccatgaagtattttcttcacatccgtgtcccgccctggccgcggagagccccgcttcatctcagtggg
 15 ctacgtggacgacacgcagttcgtgcggttcgacagcgacgcgcgagtcgagaggggagccgcgggcccgtgg
 gtggagcaggaggggcccggagtattgggaccgggagacacagaagtacaagcgccaggcacagactgaccgagtga
 gcctgcggaacctgcgcggctactacaaccagagcgaggccgggtctcacaccctccagaggatgtCtggctgcga
 cctggggcccgcacgggcgctcctccgcggtatgaccagtacgcctacgacggcaaggattacatcgccctgaac
 gaggacctgcgctcctggaccgccgcggacaccgcggctcagatcacccagcgcaagtgggaggcgcccgtgagg
 20 cggagcagcgagagcctacctggagggcacgtgcgtggagtggctccgcagatacctggagaacgggaaggagac
 gctgcagcgcgcgg (SEQ ID NO: 41656) ;

Cw*0106 :

gctcccaactccatgaagtattttcttcacatccgtgtcccgccctggccgcggagagccccgcttcatctcagtggg
 ctacgtggacgacacgcagttcgtgcggttcgacagcgacgcgcgagtcgagaggggagccgcgggcccgtgg
 25 gtggagcaggaggggcccggagtattgggaccgggagacacagaagtacaagcgccaggcacagactgaccgagtga
 gcctgcggaacctgcgcggctactacaaccagagcgaggccgggtctcacaccctccagtggatgtgtggctgcga
 cctggggcccgcacgggcgctcctccgcggtatgaccagtacgcctacgacggcaaggattacatcgccctgaac

gaggacctgcgtcctggaccgccgacacccgggctcagatcacccagcgcaagtgggaggcgcccgTgg
 cggagcagcggagagcctacctggagggcacgtgcgtggagtggctccgcagatacctggagaacgggaaggagac
 gctgcagcgcgcgg (SEQ ID NO: 51657) ;

Cw*0107 :

5 gctcccaactccatgaagtatttcttcacatccgtgtccggcctggccgaggagccccgcttcatctcagtggg
 ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgcgagtcgagaggggagccgcgccgctgg
 gtggagcaggagggcgagtagtattgggaccgggagacacagaagtacaagcgccaggcacagactgaccgagtga
 gcctgcggaacctgcgcggctactacaaccagagcgaggccgggtctcacaccctccagtggatgtgtggctgcga
 cctggggcccgacgggcgcctcctccgAggtatgaccagtacgcctacgacggcaaggattacatcgccctgaac
 10 gaggacctgcgtcctggaccgccgacacccgggctcagatcacccagcgcaagtgggaggcgcccgtagg
 cggagcagcggagagcctacctggagggcacgtgcgtggagtggctccgcagatacctggagaacgggaaggagac
 gctgcagcgcgcgg (SEQ ID NO: 61658) ;

Cw*0108 :

gctcccaactccatgaagtatttcttcacatccgtgtccggcctggccgaggagccccgcttcatctcagtggg
 15 ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgcgagtcgagaggggagccgcgccgctgg
 gtggagcaggagggcgagtagtattgggaccgggagacacagaagtacaagcgccaggcacagactgaccgagtga
 gcctgcggaacctgcgcggctactacaaccagagcgaggccgggtctcacaccctccagtggatgtgtggctgcga
 cctggggcccgacgggcgcctcctccgagggtatgaccagtacgcctacgacggcaaggattacatcgccctgaac
 gaggacctgcgtcctggaccgccgacacccgggctcagatcacccagcgcaagtgggaggcgccTgtgagg
 20 cggagcagcggagagcctacctggagggcacgtgcgtggagtggctccgcagatacctggagaacgggaaggagac
 gctgcagcgcgcgg (SEQ ID NO: 71659) ;

Cw*0109 :

gctcccaactccatgaagtatttcttcacatccgtgtccggcctggccgaggagccccgcttcatctcagtggg
 ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgcgagtcgagaggggagccgcgccgctgg
 25 gtggagcaggagggcgagtagtattgggaccgggagacacagaagtacaagcgccaggcacagactgaccgagtga
 gcctgcggaacctgcgcggctactacaaccagagcgaggccgggtctcacaccctccagtggatgtgtggctgcga
 cctggggcccgacgggcgcctcctccgagggtatgaccagtacgcctacgacggcaaggattacatcgccctgaac

gaggacctgcgtccttgaccgccgacacccggctcagatcacccagcgcaagtgggaggcgcccgtagg
cggagcagTggagagcctacctggagggcacgtgcgtggagtggctccgcagatacctggagaacgggaaggagac
gctgcagcgccgg (SEQ ID NO: 91660) ;

Cw*020201 :

5 atgcgggtcatggcgccccgaaccctcctcctgctgctctcgggagccctggccctgaccgagacctgggcctgct
cccactccatgaggtatttctacaccgctgtgtcccggcccagccgcggagagccccacttcatcgagtgaggcta
cgtggacgacacgcagttcgtgcggttcgacagcgacgccgcgagtccaagaggggagccgcgggcgccgtgggtg
gagcaggagggggcgagatttgggaccgggagacacagaagtacaagcgccaggcacagactgaccgagtgaacc
tgcggaactAcgcggtactacaaccagagcgaggccgggtctcacaccctccagaggatgtacggctgcgacct
10 ggggcccgcggcgccctcctccgcggtatgaccagtcgcctacgacggcaaggattacatgccctgaacgag
gacctgcgctcctggaccgcccgacacagcggtcagatcacccagcgcaagtgggaggcgcccgtaggcgg
agcagtgagagcctacctggaggcgagtgctggagtggctccgcagatacctggagaacgggaaggagacgct
gcagcgcgggaaacccaaagacacacgtgacccacatcccgtctctgaccatgaggccaccctgaggtgctgg
gccctgggcttctaccctacggagatcacactgacctggcagcgggatggcgaggacaaaactcaggacaccgagc
15 ttgtggagaccaggccagcaggagatggaaccttcagaagtgggcagctgtggtggtgccttctggagaagagca
gagatacacgtgccatgtgcagcacgaggggtgccggagcccctcacctgagatgggagccatcttcccagccc
accatccccatcgtggcatcgttgctggcctggctgtcctggctgtcctagctgtcctaggagctgtggtggctg
ttgtgatgttaggaggaagagctcaggtgaaaaggagggagctgctctcaggctgcgtccagcaacagtgccca
gggctctgatgagtctctcatcgctttaa (SEQ ID NO: 91661) ;

20 Cw*020202 :

atgcgggtcatggcgccccgaaccctcctcctgctgctctcgggagccctggccctgaccgagacctgggcctgct
cccactccatgaggtatttctacaccgctgtgtcccggcccagccgcggagagccccacttcatcgagtgaggcta
cgtggacgacacgcagttcgtgcggttcgacagcgacgccgcgagtccaagaggggagccgcgggcgccgtgggtg
gagcaggagggggcgagatttgggaccgggagacacagaagtacaagcgccaggcacagactgaccgagtgaacc
25 tgcggaaactgcgcggtactacaaccagagcgaggccgggtctcacaccctccagaggatgtacggctgcgacct
ggggcccgcggcgccctcctccgcggtatgaccagtcgcctacgacggcaaggattacatgccctgaacgag
gacctgcgctcctggaccgcccgacacagcggtcagatcacccagcgcaagtgggaggcgcccgtaggcgg

agcagtggagagcctacctggaggcgagtgctggagtggctccgcagatacctggagaacgggaaggagacgct
gcagcgcgcggaacacccaaagacacacgtgaccacccatcccgtctctgaccatgaggccaccctgaggtgctgg
gccctgggcttctacctAcggagatcacactgacctggcagcgggatggcgaggaccaaactcaggacaccgagc
ttgtggagaccaggccagcaggagatggaaccttcagaagtgggcagctgtggtggtgccttctggagaagagca
5 gagatacacgtgccatgtgcagcacgaggggctgccggagcccctcacctgagatgggagccatcttccagccc
accatccccatcgtgggcatcgttgctggcctggctgtcctggctgtcctagctgtcctaggagctgtggtggctg
ttgtgatgtgtaggaggaagagctcaggtggaaaaggaggagctgtctcaggctgcgtccagcaacagtgccca
gggctctgatgagtctctcatcgctttaa (SEQ ID NO:401662) ;

Cw*020203 :

10 gctccactccatgaggtatttctacaccgctgtgtccggcccagccgcggagagccccacttcatcgagtggtg
ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgcgagtcgaagaggggagccgcggcgccgtgg
gtggagcaggagggggcgagtgattgggaccgggagacacagaagtacaagcgccaggcacagactgaccgagtga
acctgcggaaactgcgcggtactacaaccagagcgaggccgggtctcacaccctccagaggatgtatggctgcga
cctggggcccgcggcgccctcctccgcggtatgaccagtccgcctacgacggcaaggattacatcgccctgaac
15 gaggacctgcgctcctggaccgccgggacacAgcggctcagatcacccagcgcaagtgggagggcgcccgtagg
cggagcagTggagagcctacctggaggcgagtgctggtgagtggtccgcagatacctggagaacgggaaggagac
gctgcagcgcgcgg (SEQ ID NO:411663) ;

Cw*020204 :

atgcgggtcatggcgccccgaaccctcctcctgctgctctcgggagccctggccctgaccgagacctgggcctgct
20 cccactccatgaggtatttctacaccgctgtgtccggcccAgccgcggagagccccacttcatcgagtggtgta
cgtggacgacacgcagttcgtgcggttcgacagcgacgccgcgagtcgaagaggggagccgcggcgccgtgggtg
gagcaggagggggcgagtgattgggaccgggagacacagaagtacaagcgccaggcacagactgaccgagtgaacc
tgcggaactgcgcggtactacaaccagagcgaggccgggtctcacaccctccagaggatgtacggctgcgacct
ggggcccgcggcgccctcctccgcggtatgaccagtccgcctacgacggcaaggattacatcgccctgaacgag
25 gacctgcgctcctggaccgccgggacacGcggctcagatcacccagcgcaagtgggagggcgcccgtaggcgg
agcagtggagagcctacctggaggcgagtgctggagtggctccgcagatacctggagaacgggaaggagacgct
gcagcgcgcggaacacccaaagacacacgtgaccacccatcccgtctctgaccatgaggccaccctgaggtgctgg

gccctgggcttctaccctgcggagatcacactgacctggcagcgggatggcgaggaccaaactcaggacaccgagc
 ttgtggagaccaggccagcaggagatggaaccttcagaagtggcagctgtggtggtgccttctggagaagagca
 gagatacacgtgccatgtgcagcacgaggggctgccggagccccaccctgagatgggagccAtcttcccagccc
 accatccccatcgtggcatcgttgctggcctggctgtcctggctgtcctagctgtcctaggagctgtggtggctg
 5 ttgtgatgtgtaggaggaagagctcag (SEQ ID NO:421664) ;

Cw*020205 :

gctccactccatgaggtatttctacaccgctgtgtcccgccccAgccgcggagagccccacttcatcgagtgagg
 ctacgtggagacacgcagttcgtgcggttcgacagcgacgccgcgagtcgaagaggggagccgcggcgccgtgg
 gtggagcaggaggggcccggagtattgggaccgggagacacagaagtacaagcgccaggcacagactgaccgagtga
 10 acctgcgaaactgcgcggctactacaaccagagcgaggccgggtctcacaccctccagAggatgtatggctgcga
 cctggggcccgcggcgccctcctccgcgggtatgaccagtGcgctacgacggcaaggattacatcgccctgaac
 gaggacctgcgctcctggaccgcgggacacGgcggctcagatcaccagcgcaagtgggagggcgccgtgagg
 cggagcagTggagagcctacctggaggcgAgtcgctggagtggctccgcagatacctggagaacgggaaggagac
 gctgcagcgcgagg (SEQ ID NO:431665) ;

15 Cw*0203 :

gctccactccatgaggtatttctacaccgctgtgtcccgccccagccgcggagagccccacttcatcgagtgagg
 ctacgtggagacacgcagttcgtgcggttcgacagcgacgccgcgagtcgaagaggggagccgcggcgccgtgg
 gtggagcaggaggggcccggagtattgggaccgggagacacagaagtacaagcgccaggcacagactgaccgagtga
 acctgcgaaactgcgcggctactacaaccagagcgaggccgggtctcacaccctccagaggatgtacggctgcga
 20 cctggggcccgcggcgccctcctccgcgggtatgaccagtccgcctacgacggcaaggattacatcgccctgaac
 gaggacctgcgctcctggaccgcgggacacagcggctcagatcaccagcgcaagtgggagggcgccgtgTgg
 cggagcagctgagagcctacctggaggcgAgtcgctggagtggctccgcagatacctggagaacgggaaggagac
 gctgcagcgcgagg (SEQ ID NO:441666) ;

Cw*0204 :

25 gctccactccatgaggtGtttctacaccgctgtgtcccgccccagccgcggagagccccacttcatcgagtgagg
 ctacgtggagacacgcagttcgtgcggttcgacagcgacgccgcgagtcgaagaggggagccgcggcgccgtgg
 gtggagcaggaggggcccggagtattgggaccgggagacacagaagtacaagcgccaggcacagactgaccgagtga

acctgcggaaactgcgcggctactacaaccagagcgaggccgggtctcacaccctccagaggatgtacggctgcga
 cctggggcccgcacgggcgcctcctccgcgggtatgaccagtcgcctacgacggcaaggattacatcgccctgaac
 gaggacctgcgctcctggaccgccgaggacacagcggctcagatcaccagcgcaagtgggaggcgcccgtagg
 cggagcagtgagagcctacctggaggcgagtgctggagtggtccgcagatacctggagaacgggaaggagac
 5 gctgcagcgcgcgg (SEQ ID NO:451667) ;

Cw*0205 :

gctccactccatgaggtatttctacaccgctgtgtccggcccAgccgcggagagccccacttcatcgagtgagg
 ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgcgagtcgaagaggggagccgcccgcctgg
 gtggagcaggaggggcccggagtattgggaccgggagacacagaagtacaagcgccaggcacagactgaccgagtga
 10 acctgcggaaactgcgcggctactacaaccagagcgaggccgggtctcacaccctccagtggtatgttgctgcga
 cctggggcccgcacgggcgcctcctccgcgggtatgaccagtGcgctacgacggcaaggattacatcgccctgaac
 gaggacctgcgctcctggaccgccgaggacacGgcggctcagatcaccagcgcaagtgggaggcgcccgtagg
 cggagcagTggagagcctacctggaggcgAgtgcgtggagtggtccgcagatacctggagaacgggaaggagac
 gctgcagcgcgcgg (SEQ ID NO:461668) ;

15 Cw*0206 :

gctccactccatgaggtatttctacaccgctgtgtccggcccagccgcggagagccccacttcatcgagtgagg
 ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgcgagtcgaagaggggagccgcccgcctgg
 gtggagcaggaggggcccggagtattgggaccgggagacacagaagtacaagcgccaggcacagactgaccgagtga
 acctgcggaaactgcgcggctactacaaccagagcgaggccgggtctcacaccctccagaggatgtacggctgcga
 20 cctggggcccgcacgggcgcctcctccgcgggtatgaccagttAgcctacgacggcaaggattacatcgccctgaac
 gaggacctgcgctcctggaccgccgaggacacggcgctcagatcaccagcgcaagtgggaggcgcccgtagg
 cggagcagtgagagcctacctggaggcgAgtgcgtggagtggtccgcagatacctggagaacgggaaggagac
 gctgcagcgcgcgg (SEQ ID NO:471669) ;

Cw*030201 :

25 atgcgggtcatggcgccccgaacctcatcctgctgctctcgggagccctggccctgaccgagacctgggcccggct
 cccactccatgaggtatttctacaccgctgtgtccggcccggccgcggggagccccacttcatcgagtgaggcta
 cgtggacgacacgcagttcgtgcggttcgacagcgacgccgcgagtcgaagaggggagccgcccgcctgggtg

gagcaggaggggcccggagtagtttgggaccgggagacacagaagtacaagcgccaggcacagactgaccgagtgagcc
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 ggggcccgcggcgccctcctccgcggtatgaccagtcgcctacgacggcaaggattacatcgccctgaacgag
 gatctgcgctcctggaccgccgagacacggcggtcagatcacccagcgcaagtgggaggcgcccgtaggcgg
 5 agcagctgagagcctacctggaggccctgtgcgtggagtggctccgcagatacctgaagaatgggaaggagacgct
 gcagcgcgcggaacacccaaagacacacgtgaccaccatcccgtctctgaccatgaggccaccctgaggtgctgg
 gccctgggcttctacctgcggagatcacactgacctggcagtgggatggggaggacaaaactcaggacacTgagc
 ttgtggagaccaggccagcaggagatggaaccttcagaagtgggcagctgtggtggtgccttctggagaagagca
 gagatacacgtgccatgtgcagcacgaggggctgccggagccccctaccctgagatgggagccAtcttcccagccc
 10 accatccccatcgtgggcatcgttgctggcctggctgtcctggctgtcctagctgtcctaggagctgtggtggctg
 ttgtgatgtgtaggaggaagagctcaggtggaaaaggaggagctgctctcaggctgcgtccagcaacagtgccca
 gggctctgatgagtctctcatcgcttgtaa (SEQ ID NO: 481670) ;
 Cw*030202 :
 atgcgggtcatggcgccccgaacctcatcctgctgctctcgggagccctggccctgaccgagacctgggcccggct
 15 cccactccatgaggtatttctacaccgctgtgtcccgcccgccgcggggagccccacttcatcgagtgaggcta
 cgtggacgacacgcagttcgtgcggttcgacagcgacgccgagtcgagaggggagccgcggcgccgtgggtg
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 ggggcccgcggcgccctcctccgcggtatgaccagtcgcctacgacggcaaggattacatcgccctgaacgag
 20 gatctgcgctcctggaccgccgagacacggcggtcagatcacccagcgcaagtgggaggcgcccgtaggcgg
 agcagctgagagcctacctggaggccctgtgcgtggagtggctccgcagatacctgaagaatgggaaggagacgct
 gcagcgcgcggaacacccaaagacacacgtgaccaccatcccgtctctgaccatgaggccaccctgaggtgctgg
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 ttgtggagaccaggccagcaggagatggaaccttcagaagtgggcagctgtggtggtgccttctggagaagagca
 25 gagatacacgtgccatgtgcagcacgaggggctgccggagccccctaccctgagatgggagccgcttcccagccc
 accatccccatcgtgggcatcgttgctggcctggctgtcctggctgtcctagctgtcctaggagctgtggtggctg
 ttgtgatgtgtaggaggaagagctcaggtggaaaaggaggagctgctctcaggctgcgtccagcaacagtgccca

gggctctgatgagtctctcatcgctttaa (SEQ ID NO:191671) ;

Cw*030301 :

atgcgggtcatggcgccccgaacctcatcctgctgctctcgggagccctggccctgaccgagacctgggcccggct
 cccactccatgaggtatttctacaccgctgtgtcccgcccgccgcccggggagccccacttcatcgagtgaggcta
 5 cgtggacgacacgcagttcgtgcggttcgacagcgacgccgcgagtcgagaggggagccgcccggcgccgtgggtg
 gagcaggagggggcggagtattgggaccgggagacacagaagtacaagcgccaggcacagactgaccgagttagcc
 tgcggaacctgcgcggtactacaaccagagcgaggccAggtctcacatcAtccagaggatgtatggctgcgacgt
 gggggccgacggggcgctcctccgcggtatgaccagtacgcctacgacggcaaggattacatcgccctgaacgag
 gatctgcgctcctggaccgcccgcgacacggcggtcagatcacccagcgcaagtgggaggcggcccgtagggcgg
 10 agcagctgagagcctacctggaggccctgtgcgtggagtggctccgcagatacctgaagaatgggaaggagacgct
 gcagcgcgcggaacacccaaagacacacgtgaccacccatcccgtctctgacctgaggccaccctgaggtgctgg
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 ttgtggagaccaggccagcaggagatggaaccttcagaagtgggcagctgtgGtgggtgccttctggagaagagca
 gagatacacgtgcatgtgcagcacgaggggctgccggagccccctaccctgagatgggagccgtcttcccagccc
 15 accatccccatcgtggcatcgttgctggcctggctgtcctggctgtcctagctgtcctaggagctgtgggtggctg
 ttgtgatgttaggaggaagagctcaggtggaaaaggaggagctgctctcaggctgcgtccagcaacagtgccca
 gggctctgatgagtctctcatcgctttaa (SEQ ID NO:201672) ;

Cw*030302 :

atgcgggtcatggcgccccgaacctcatcctgctgctctcgggagccctggccctgaccgagacctgggcccggct
 20 cccactccatgaggtatttctacaccgctgtgtcccgcccgccgcccggggagccccacttcatcgagtgaggcta
 cgtggacgacacgcagttcgtgcggttcgacagcgacgccgcgagtcgagaggggagccgcccggcgccgtgggtg
 gagcaggagggggcggagtattgggaccgggagacacagaagtacaagcgccaggcacagactgaccgagttagcc
 tgcggaacctgcgcggtactacaaccagagcgaggccaggctctcacatcatccagaggatgtatggctgcgacgt
 gggggccgacggggcgctcctccgcggtatgaccagtacgcctacgacggcaaggattacatcgccctgaacgag
 25 gatctgcgctcctggaccgcccgcgacacggcgccCagatcacccagcgcaagtgggaggcggcccgtagggcgg
 agcagctgagagcctacctggaggccctgtgcgtggagtggctccgcagatacctgaagaatgggaaggagacgct
 gcagcgcgcggaacacccaaagacacacgtgaccacccatcccgtctctgacctgaggccaccctgaggtgctgg

gccctgggcttctaccctgcggagatcacactgacctggcagtgggatggggaggacaaaactcaggacactgagc
 ttgtggagaccaggccagcaggagatggaaccttcagaagtgggcagctgtggtggtgccttctggagaagagca
 gagatacacgtgcatgtgcagcacgaggggctgccggagccccctaccctgagatgggagccgtcttcccagccc
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 5 ttgtgatgtgtaggaggaagagctcaggtgaaaaggaggagctgtctcaggctgcgtccagcaacagtgccca
 gggctctgatgagtctctcatcgctttaa (SEQ ID NO: 241673) ;

Cw*030303 :

gctccactccatgaggtatttctacaccgctgtgtccggccccggcggggagccccacttcatcgagtgagg
 ctacttgagacacacgagttcgtgcggttcgacagcgacgcccgcgagtcgagaggggagccgcccgcgctgg
 10 gtggagcaggagggccggagtattgggaccgggagacacagaagtacaagcggcaggcacagactgaccgagtga
 gcctgcggaacctgcgcggtactacaaccagagcgaggccaggtctcacatcatccagaggatgtatggctgcga
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 gaggatctgcgctcctggaccgccgacacggcggtcagatcacccagcgcaagtgggagggcgcccgtagg
 cggagcagctgagagcctacctggaggccctgtgcgtggagtggctccgcagatacctgaagaatgggaaggagac
 15 gctgcagcgcgagg (SEQ ID NO: 221674) ;

Cw*030401 :

atgcgggtcatggcggccgaacctcatcctgctgtctcgggagccctggccctgaccgagacctgggcccggct
 cccactccatgaggtatttctacaccgctgtgtccggccccggcggggagccccacttcatcgagtgaggcta
 cgtggacgacacgagttcgtgcggttcgacagcgacgcccgcgagtcgagaggggagccgcccgcgctgggtg
 20 gagcaggagggggccggagtattgggaccgggagacacagaagtacaagcggcaggcacagactgaccgagttagcc
 tgcggaacctgcgcggtactacaaccagagcgaggccgggtctcacatcAtccagaggatgtatggctgcgacgt
 gggggccgacgggcgcctcctccgcggtatgaccagtacgcctacgacggcaaggattacatcgccctgaacgag
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 agcagctgagagcctacctggaggccctgtgcgtggagtggctccgcagatacctgaagaatgggaaggagacgct
 25 gcagcgcggggaacacccaaagacacacgtgaccacccatcccgtctctgacctgaggccaccctgagggtgctgg
 gccctgggcttctaccctgcggagatcacactgacctggcagtgggatggggaggacaaaactcaggacacTgagc
 ttgtggagaccaggccagcaggagatggaaccttcagaagtgggcagctgtggtggtgccttctggagaagagca

gagatacacgtgcatgtgcagcacgaggggctgccggagccccctaccctgagatgggagccgtcttcccagccc
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 ttgtgatgtgtaggaggaagagctcaggtggaaaaggagggagctgctctcaggctgcgtccagcaacagtgccca
 gggctctgatgagtctctcatcgttgtaa (SEQ ID NO: ~~42~~1675) ;

5 Cw*030402 :

gctccactccatgaggtatttctacaccgctgtgtcccggcccggccgaggagccccacttcatcgcagtggg
 ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgcgagtcgagaggggagccggcgccgtgg
 gtggagcaggaggggcccggagtattgggaccgggagacacagaagtacaagcggcaggcacagactgaccgagtga
 gcctgcggaacctgcgcggctactacaaccagagcgaggccgggtctcacatcAtccagaggatgtaGggctgcga
 10 cgtggggcccgcggcgccctcctccgcgggtatgaccagtacgcctacgacggcaaggattacatgccctgaac
 gaggatctgcgctcctggaccgccgcggacacggcggtcagatcaccagcgcaagtgggagggcgcccgtagg
 cggagcagctgagagcctacctggagggcctgtgcgtggagtggctccgcagatacctgaagaaTgggaaggagac
 gctgcagcgcgcg (SEQ ID NO: 241676) ;

Cw*0305 :

15 gctccactccatgaggtatttctacaccgctgtgtcccggcccggccgaggagccccacttcatcgcagtggg
 ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgcgagtcgagaggggagccggcgccgtgg
 gtggagcaggaggggcccggagtattgggaccgggagacacagaagtacaagcggcaggcacagactgaccgagtga
 gcctgcggaacctgcgcggctactacaaccagagcgaggccgggtctcacaccctccagagGatgtacggctgcga
 cgtggggcccgcggcgccctcctccgcgggtatgaccagtacgcctacgacggcaaggattacatgccctgaac
 20 gaggatctgcgctcctggaccgccgcggacacggcggtcagatcaccagcgcaagtgggagggcgcccgtagg
 cggagcagctgagagcctacctggagggcctgtgcgtggagtggctccgcagatacctgaagaaTgggaaggagac
 gctgcagcgcgcg (SEQ ID NO: ~~25~~1677) ;

Cw*0306 :

gctccactccatgaggtatttctacaccgctgtgtcccggcccggccgaggagccccacttcatcgcagtggg
 25 ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgcgagtcgagaggggagccggcgccgtgg
 gtggagcaggaggggcccggagtattgggaccgggagacacagaagtacaagcggcaggcacagactgaccgagtga
 gcctgcggaacctgcgcggctactacaaccagagcgaggccgggtctcacatcatccagaggatgtatggctgcga

cgtggggcccgaaggcgccctcctccgcggtatgTccagtagcctacgacggcaaggattacatcgccctgaac
gaggatctgcgctcctggaccgccgacacggcggtcagatcaccagcgcaagtgggaggcgcccgtagg
cggagcagctgagagcctacctggaggccctgtgctggagtggctccgcagatacctgaagaatgggaaggagac
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5 Cw*0307 :

gctccactccatgaggtatttctacaccgctgtgtccggcccgccggggagccccacttcatcgcagtggg
ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgagtcgagaggggagccggcgccgtgg
gtggagcaggagggcgaggtattgggaccgggagacacagaagtacaagcgccaggcacagactgaccgagtga
AcctgcggaaActgcgcggtactacaaccagagcgaggccgggtctcacatcAtccagaggatgtatggctgcga
10 cGtggggcccgaaggcgccctcctccgcggtatgaccagtagcctacgacggcaaggattacatcgccctgaac
gaggatctgcgctcctggaccgccgacacggcggtcagatcaccagcgcaagtgggaggcgcccgtagg
cggagcagctgagagcctacctggaggccTgtgctggagtggctccgcagatacctgaagaaTgggaaggagac
gctgcagcgcgcg (SEQ ID NO: ~~27~~1679;

Cw*0308 :

15 atgcgggtcatggcgccccgaaccctcatcctgctgctctcgggagccctggccctgaccgagacctgggcccgt
cccactccatgaggtatttctacaccgctgtgtccggcccgccggggagccccacttcatcgcagtgggcta
cgtggacgacacgcagttcgtgcggttcgacagcgacgccgagtcgagaggggagccggcgccgtgggtg
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tgcggaacctgcgcggtactacaaccagagcgaggccgggtctcacatcAtccagaggatgtatggctgcgacgt
20 ggggcccgaaggcgccctcctccgcggtatgaccagtagcctacgacggcaaggattacatcgccctgaacgag
gatctgcgctcctggaccgccgacacggcggtcagatcaccagcgcaagtgggaggcgcccgtaggcgg
agcagctgagagcctacctggaggccctgtgctggagtggctccgcagatacctgaagaatgggaaggagacgct
gcagcgcggaacacccaaagacacacgtgacccaccatcccgtctctgaccatgaggccaccctgaggtgctgg
gccctgggcttctaccctgcggagatcacactgacctggcagtggtatgggaggaccaaactcaggacacTgagc
25 ttgtggagaccaggccagcaggagatggaaccttcagaaagtgggcagctgtggtggtgccttctggagaagagca
gagatacagtgccatgtgcagcacgaggggtgccggagcccctcaccctgagatgggagccgtcttccagccc
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Cw*0309 :

gctccactccatgaggtatttctacaccgctgtgtcccggcccggcggggagccccacttcatcGcagtggg
 ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgcgagtcgagaggggagccgcgggcgccgtgg
 5 gtggagcaggaggggcccggagtattgggaccgggagacacagaagtacaagcgccaggcacagactgaccgagtga
 gcctgcggaacctgcgcggctactacaaccagagcgaggccgggtctcacatcAtccagaggatgtatggctgcga
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 gaggatctgcgctcctggaccgccgacacggcggtcagatcacccagcgcaagtgggagggcgcccgtagg
 cggagcagctgagagcctacctggagggccTgtcgtggagtggctccgcagatacctgaagaaTgggaaggagac
 10 gctgcagcgcgcgg (SEQ ID NO:~~29~~1681);

Cw*0310 :

gctccactccatgaggtatttctacaccgctgtgtcccggcccggcggggagccccacttcatcgcagtggg
 ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgcgagtcgagaggggagccgcgggcgccgtgg
 gtggagcaggaggggcccggagtattgggaccgggagacacagaagtacaagcgccaggcacagactgaccgagtga
 15 gcctgcggaAActgcgcggctactacaaccagagcgaggccgggtctcacatcAtccagaggatgtatggctgcga
 cGtggggcccgcggcgccctcctccgcggtatgaccagtacgcctacgacggcaaggattacatcgccctgaac
 gaggatctgcgctcctggaccgccgacacggcggtcagatcacccagcgcaagtgggagggcgcccgtagg
 cggagcagctgagagcctacctggagggccTgtcgtggagtggctccgcagatacctgaagaaTgggaaggagac
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20 Cw*0311 :

gctccactccatgaggtatttctacaccgctgtgtcccggcccggcgggagagccccgcttcatctcagtggg
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 gtggagcaggaggggcccggagtattgggaccgggagacacagaagtacaagcgccaggcacagactgaccgagtga
 gcctgcggaacctgcgcggctactacaaccagagcgaggccAggtctcacatcAtccagaggatgtatggctgcga
 25 cgtggggcccgcggcgccctcctccgcggtatgaccagtacgcctacgacggcaaggattacatcgccctgaac
 gaggatctgcgctcctggaccgccgacacggcggtcagatcacccagcgcaagtgggagggcgcccgtagg
 cggagcagctgagagcctacctggagggccTgtcgtggagtggctccgcagatacctgaagaatgggaaggagac

gctgcagcgcgcgg (SEQ ID NO:~~31~~1683) ;

Cw*0312 :

gctccactccatgaggtatttctacaccgctgtgtcccggcccggcgcggggagccccacttcatcgcagtgagg
ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgcgagtcgagaggggagccgcggcgccgtgg
5 gttggagcaggaggggcccggagtattgggaccgggagacacagaagtacaagcgccaggcacagactgaccgagtga
gcctgcggaacctgcgcggctactacaaccagagcgaggccAggtctcacatcatccagaggatgtatggctgcga
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gaggatctgcgctcctggaccgccgcggacacggcggtcagatcaccagcgcaagtgggagggcgcccgtagg
cggagcagctgagagcctacctggagggcctgtgcgtggagtggctccgcagatacctgaagaatgggaaggagac
10 gctgcagcgcgcgg (SEQ ID NO:~~32~~1684) ;

Cw*0313 :

atgcgggtcatggcgccccgaacctcatcctgctgctctcgggagccctggccctgaccgagacctgggcccggct
cccactccatgaggtatttctacaccgctgtgtcccggcccggcgcggggagccccacttcatcgcagtgaggcta
cgtggacgacacgcagttcgtgcggttcgacagcgacgccgcgagtcgagaggggagccgcggcgccgtgggtg
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tgcggaacctgcgcggctactacaaccagagcgaggccAggtctcacacctccagaggatgtatggctgcgacgt
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gatctgcgctcctggaccgccgcggacacggcggtcagatcaccagcgcaagtgggagggcgcccgtaggcgg
agcagctgagagcctacctggagggcctgtgcgtggagtggctccgcagatacctgaagaatgggaaggagacgct
20 gcagcgcgcggaacacccaaagacacacgtgacccaccatcccgtctctgaccatgaggccaccctgaggtgctgg
gccctgggcttctacctgcggagatcacactgacctggcagtgggatggggaggacaaactcaggacactgagc
ttgtggagaccaggccagcaggagatggaaccttcagaagtgggcagctgtgGtgggtgccttctggagaagagca
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accatccccatcgtggcatcgttgctggcctggctgtcctggctgtcctagctgtcctaggagctgtggtagctg
25 ttgtgatgtgtaggaggaagagctcaggtggaaaaggaggagctgctctcaggctgcgtccagcaacagtgccca
gggctctgatgagtctctcatcgctttaa (SEQ ID NO:~~33~~1685) ;

Cw*0314 :

gctccactccatgaggtatttctacaccgctgtgtccggcccgccgaggagccccacttcatcgagtgagg
 ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgagtcgagaggggagccgaggcgccgtgg
 gtggagcaggaggggcccggagtattgggaccgggagacacagaagtacaagcgccaggcacagactgaccgagtga
 gcctgcggaacctgcgcggctactacaaccagagcgaggccgggtctcacatcatccagaggatgtatggctgcga
 5 cgtggggcccgcggcgccctcctccgcggtatgaccagtcgcctacgacggcaaggattacatcgccctgaac
 gaggacctgcgctcctggaccgccgaggacaccgggctcagatcaccagcgcaagttggaggcgcccgtg0gg
 cggagcagctgagagcctacctggagggcacgtgcgtggagtggctccgcagatacctgaagaaTgggaaggagac
 gctgcagcgccgg (SEQ ID NO:341686) ;

Cw*0315 :

10 gctccactccatgaggtatttctacaccgctgtgtccggcccgccgaggagccccacttcatcgagtgagg
 ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgagtcgagaggggagccgaggcgccgtgg
 gtggagcaggaggggcccggagtattgggaccgggagacacagaagtacaagcgccaggcacaggctgaccgagtga
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 cggagcagctgagagcctacctggagggccTgtcgtggagtggctccgcagatacctgaagaaTgggaaggagac
 gctgcagcgccgg (SEQ ID NO:351687) ;

Cw*0316 :

gctccactccatgaggtatttctacaccgctgtgtccggcccgccgaggagccccacttcatcgagtgagg
 20 ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgagtcgagaggggagccgaggcgccgtgg
 gtggagcaggaggggcccggagtattgggaccgggagacacagaagtacaagcgccaggcacagactgaccgagtga
 gcctgcggaacctgcgcggctactacaaccagagcgaggccgggtctcacatcctccagaggatgtatggctgcga
 cGtggggcccgcggcgccctcctccgcggtatgaccagt0cgccctacgacggcaaggattacatcgccctgaac
 gaggatctgcgctcctggaccgccgaggacacGcggtcagatcaccagcgcaagttggaggcgcccgtgagg
 25 cggagcagcTgagagcctacctggagggcacgtgcgtggagtggctccgcagatacctggagaacgggaaggagac
 gctgcagcgccgg (SEQ ID NO:361688) ;

Cw*040101 :

atgcgggtcatggcgccccgaacctcatcctgctgctctcgggagccctggccctgaccgagacctgggccggct
 ccactccatgaggtatttctccacatccgtgtcctggcccggccgcggggagccccgcttcatcgagtgaggcta
 cgtggacgacacgcagttcgtgcggttcgacagcgacgcccgcgagtcgaagaggggagccgcgggagccgtgggtg
 gagcaggagggggccggagtattgggaccgggagacacagaagtacaagcgccaggcacaggctgaccgagtgaacc
 5 tgcggaaactgcgcggctactacaaccagagcgaggacgggtctcacaccctccagaggatgtttggctgcgacct
 gggggccggacgggcgccctcctccgcggtataaccagttcgctacgacggcaaggattacatcgccctgaacgag
 gatctgcgctcctggaccgccgagacacggcggtcagatcaccagcgcaagtgggaggcgcccgtaggagg
 agcagcggagagcctacctggagggcacgtgcgtggagtggctccgcagatacctggagaacgggaaggagacgct
 gcagcgcgggaacacccaaagacacacgtgaccaccatcccgtctctgacctgaggccaccctgagggtgctgg
 10 gccctgggcttctaccctgcggagatcacactgacctggcagtgggatggggaggacaaaactcaggacaccgagc
 ttgtggagaccaggccagcaggagatggaaccttcagaagtgggcagctgtggtggtgccttctggagaagagca
 gagatacacgtgccatgttcagcacgaggggctgccggagccctcaccctgagatggaagccgtcttccagccc
 accatccccatcgtgggcatcgttgcctggcctggtgtcctggtgtcctagctgtcctaggagctAtggtggctg
 ttgtgatgtgtaggaggaagagctcaggtggaaggaggaggagctgctctcaggctgcgtccagcaacagtgccca
 15 gggctctgatgagtctctcatcgcttgtaa (SEQ ID NO: ~~37~~1689) ;

Cw*040102 :

gctccactccatgaggtatttctccacatccgtgtcctggcccggccgcggggagccccgcttcatcgagtgagg
 ctacgtggacgacacAcagttcgtgcggttcgacagcgacgcccgcgagtcgaagaggggagccgcgggagccgtgg
 gtggagcaggagggggccggagtattgggaccgggagacacagaagtacaagcgccaggcacaggctgaccgagtga
 20 acctgcggaaactgcgcggctactacaaccagagcgaggacgggtctcacaccctccagaggatgttttggtgcga
 cctggggccggacgggcgccctcctccgcggtataaccagttcgctacgacggcaaggattacatcgccctgaac
 gaggatctgcgctcctggaccgccgagacacggcggtcagatcaccagcgcaagtgggaggcgcccgtagg
 cggagcagcggagagcctacctggagggcacgtgcgtggagtggctccgcagatacctggagaacgggaaggagac
 gctgcagcgcgcgg (SEQ ID NO: ~~38~~1690) ;

25 Cw*0403 :

atgcgggtcatggcgccccgaacctcatcctgctgctctcgggagccctggccctgaccgagacctgggccggct
 ccactccatgaggtatttctacaccgtgtgtcccggcccagccgaggagagccccActtcatcgagtgaggcta

cgtggacgacacgcagttcgtgcggttcgacagcgcgcgcgagtcgaagaggggagccgcgggcccgtgggtg
 gagcaggaggggcccggagtattgggaccgggagacacagaagtacaagcgccaggcacaggctgaccgagtgaacc
 tgcggaaactgcgcggctactacaaccagagcgcgaggacgggtctcacaccctccagaggatgtttggctgcgacct
 ggggcccgcgacgggcccctcctccgcgggtataaccagttcgcctacgacggcaaggattacatgccctgaacgag
 5 gatctgcgctcctggaccgccgcggacacggcggtcagatcacccagcgcaagtgggaggcggcccgtgaggcgg
 agcagcggagagcctacctggagggcacgtgcgtggagtggctccgcagatacctggagaacgggaaggagacgct
 gcagcgcgcgggaacacccaaagacacacgtgacccaccatcccgtctctgaccatgaggccaccctgagggtgctgg
 gccctgggcttctaccctgcggagatcacactgaacctggcagtgggatggggaggaccaaactcaggacaccgagc
 ttgtggagaccaggccagcaggagatggaaccttcagaagtgggcagctgtggtggtgccttctggagaagagca
 10 gagatacacgtgcatgtTcagcacgaggggctgccggagcccctcacctgagatggaagccgtcttcccagccc
 accatccccatcgtggcatcgttgctggcctggctgtcctggctgtcctagctgtcctaggagctgtggtggctg
 ttgtgatgtgtaggaggaagagctcaggtggaaggaggagctgctctcaggctgcgtccagcaacagtgccca
 gggctctgatgagtctctcatcgcttgtaa (SEQ ID NO: ~~39~~1691) ;

Cw*0404 :

15 gctcccactccatgaggatatttctccacatccgtgtcctggcccggccgcggggagccccgcttcatcgcagtggg
 ctacgtggacgacacgcagttcgtgcggttcgacagcgcgcgcgagtcgaagaggggagccgcgggAgccgtgg
 gtggagcaggaggggcccggagtattgggaccgggagacacagaagtacaagcgccaggcacaggctgaccgagtga
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 cctggggcccgcgacgggcccctcctccgcgggtataaccagttcgcctacgacggcaaggattacatgccctgaac
 20 gaggatctgcgctcctggaccgccgcggacacggcggtcagatcacccagcgcaagtgggaggcggcccgtgagg
 cggagcagcTgagagcctacctggagggcacgtgcgtggagtggctccgcagatacctggagaacgggaaggagac
 gctgcagcgcgcgg (SEQ ID NO: ~~40~~1692) ;

Cw*0405 :

25 gctcccactccatgaggatatttctccacatccgtgtcctggcccggccgcggggagccccgcttcatcgcagtggg
 ctacGtggacgacacgcagttcgtgcggttcgacagcgcgcgcgagtcgaagaggggagccgcgggagccgtgg
 gtggagcaggaggggcccggagtattgggaccgggagacacagaagtacaagcgccaggcacaggctgaccgagtga
 acctgcggaaactgcgcggctactacaaccagagcgcgaggacgggtctcacaccctccagaggatgtttggctgcga

cctggggcggacgggcgcctcctccgcggtataaaccagttcgctacgacggcaaggattacatcgccctgaac
gaggatctgcgctcctggaccgccgcgacacggcggtcagatcaccagcgcaagtgggaggcgcccgtagg
cggagcagcggagagcctacctggagggcacgtgcgtggagtggctccgcagatacctggagaacgggaaggagac
gctgcagcgcgcgg (SEQ ID NO: 41693) ;

5 Cw*0406 :

gctccactccatgaggtatttctacaccgctgtgtccggcccagccgagagccccActtcatcgagtgagg
ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgagtcgaagaggggagccggcgccgtgg
gtggagcaggagggcgcgagtttgggaccgggagacacagaagtacaagcgccaggcacaggctgaccgagtga
acctgcggaaactgcgcggctactacaaccagagcgaggacgggtctcacaccctccagaggatgtttggctgcga
10 cctggggccgacgggcgcctcctccgcggtataaaccagttcgctacgacggcaaggattacatcgccctgaac
gaggatctgcgctcctggaccgccgcgacacggcggtcagatcaccagcgcaagtgggaggcgcccgtagg
cggagcagcTgagagcctacctggagggcacgtgcgtggagtggctccgcagatacctggagaacgggaaggagac
gctgcagcgcgcgg (SEQ ID NO: 421694) ;

Cw*0407 :

15 gctccactccatgaggtatttctccacatccgtgtccTggcccggccgcggggagccccgcttcatcgagtgagg
ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgagtcgaagaggggagccggcgccgtgg
gtggagcaggagggcgcgagtttgggaccgggagacacagaagtacaagcgccaggcacagGctgaccgagtga
acctgcggaaactgcgcggctactacaaccagagcgaggacgggtctcacaccctccagaggatgtttggctgcga
cctggggcggacgggcgcctcctccgcggtataaaccagttcgctacgacggcaaggattacatcgccctgaac
20 gaggatctgcgctcctggaccgccgcgacacggcggtcagatcaccagcgcaagtgggaggcgcccgtagg
cggagcagcggagagcctacctggagggcacgtgcgtggagtggctccgcagatacctggagaacgggaaggagac
gctgcagcgcgcgg (SEQ ID NO: 431695) ;

Cw*0408 :

gctccactccatgaggtatttctccacatccgtgtcctggcccggccgcggggagccccgcttcatcgagtgagg
25 ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgagtcgaagaggggagccggcgAgccgtgg
gtggagcaggagggcgcgagtttgggaccgggagacacagaagtacaagcgccaggcacaggctgaccgagtga
acctgcggaaactgcgcggctactacaaccagagcgaggacgggtctcacaccctccagaggatgtttggctgcga

cctggggccggacgggcgccctcctccgcggtataaccagttcgctacgacggcaaggattacatcgccctgaac
gaggatctgcgctcctggaccgccgcgacacggcggtcagatcaccagcgcaagtgggaggcgcccgtagg
cggagcagcggagagcctacctggagggccTgtgctggagtggtccgcagataacctggagaacgggaaggagac
gctgcagcgcgcgg (SEQ ID NO:441696) ;

5 Cw*0410 :

gctccactccatgaggtatttctccacatccgtgtcctggcccggccgcggggagccccgcttcatcgcagtgagg
ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgagtcgaagaggggagccgaggAgccgtgg
gtggagcaggagggcgcgagtttgggaccgggagacacagaagtacaagcgccaggcacagactgaccgagtga
acctgcggaaactgcgcggctactacaaccagagcgaggacgggtctcacaccctccagaggatgtttggctgcga
10 cctggggccggacgggcgccctcctccgcggtataaccagttcgctacgacggcaaggattacatcgccctgaac
gaggatctgcgctcctggaccgccgcgacacggcggtcagatcaccagcgcaagtgggaggcgcccgtagg
cggagcagcggagagcctacctggagggcacgtgctggagtggtccgcagataacctggagaacgggaaggagac
gctgcagcgcgcgg (SEQ ID NO:451697) ;

Cw*0501 :

15 atgcgggtcatggcgccccgaaccctcatcctgctgctctcgggagccctggccctgaccgagacctgggcctgct
cccactccatgaggtatttctacaccgccgtgtcccgcccgccgcgaggagccccgcttcatcgcagtgaggcta
cgtggacgacacgcagttcgtgcagttcgacagcgacgccgagtcgaagaggggagccgcgggcgccgtgggtg
gagcaggagggggcgagtttgggaccgggagacacagaagtacaagcgccaggcacagactgaccgagtgaacc
tgcggaAActgcgcggctactacaaccagagcgaggccgggtctcacaccctccagaggatgtatggctgcgacct
20 ggggcccgcggcgccctcctccgcggtataaccagttcgctacgacggcaaggattacatcgccctgaatgag
gacctgcgctcctggaccgccgcgacaAggcggctcagatcaccagcgcaagtgggaggcgcccgtaggcgg
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gccctgggcttctaccctgcggagatcacactgacctggcagcgggatggcgaggaccaaactcaggacaccgagc
25 ttgtggagaccaggccagcaggagatggaaccttcagaagtgggcagctgtggtggtgccttctggagaagagca
gagatacactgcatgtgcagcacgaggggctgcagagcccctcaccctgagatgggGgcatcttcccagccc
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ttgtgatgtgtaggaggaagagctcaggtggaaaaggaggagctgctctcaggctcgtccagcaacagtgtccca
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Cw*0502 :

gctccactccatgaggtatttctacaccgccgtgtcccggccggcgaggagccccgcttcatcgagtgagg
5 ctacgtggacgacacgcagttcgtgcagttcgacagcgacgccgagtcgaagaggggagccgcgggcgccgtgg
gtggagcaggagggcgaggatattgggaccgggagacacagaagtacaagcgccaggcacagactgaccgagtga
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gaggacctgcgctcctggaccgccgggacaaggcggtcagatcacccagcgcaagtgggagggcgccgtgagg
10 cggagcagcgagagcctacctggagggcatgtcgtggagtggctgcgcagatacctggagaacgggaaggagac
gctgcagcgcgagg (SEQ ID NO: 471699) ;

Cw*0503 :

atgcgggtcatggcgccccgaacctcatcctgctgctctcgggagccctggccctgaccgagacctggcctgct
cccactccatgaggtatttctacaccgccgtgtcccggccggcgaggagccccgcttcatcgagtgaggcta
15 cgtggacgacacgcagttcgtgcagttcgacagcgacgccgagtcgaagaggggagccgcgggcgccgtgggtg
gagcaggagggcgaggatattgggaccgggagacacagaagtacaagcgccaggcacagactgaccgagtgaacc
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20 agcagcgagagcctacctggagggcacgtgcgtggagtggctccgcagatacctggagaacgggaagaagacgct
gcagcgcgaggacccccaaagacacatgtgaccaccaccccatctctgacctgaggTcacctgaggtgctgg
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25 accatccccatcgtagggcatcgttgctggcctggctgtcctggctgtcctagctgtcctaggagctgtgatggctg
ttgtgatgtgtaggaggaagagctcaggtggaaaaggaggagctgctctcaggctcgtccagcaacagtgtccca
gggctctgatgagtctctcatcgcttgtaa (SEQ ID NO: 481700) ;

Cw*0504 :

gctcccaactccatgaggtattttctacaccgccgtgtcccggcccggccgaggagccccgcttcatcgcagtggg
 ctacgtggacgacacgcagttcgtgcagttcgacagcgacgccgcgagtcgaagaggggagccgcgggcgccgtgg
 gtggagcaggagggggccggagtattgggaccgggagacacagaagtacaagcgccaggcacagactgaccgagtga
 5 acctgcggaaactgcgcggctactacaaccagagcgaggccgggtctcacaccctccagaggatgtatggctgcga
 cctggggcccgcgggcgcctcctccgcggggtatgaccagtTcgccctacgacggcaaggattacatcgccctgaat
 gaggacctgcgctcctggaccgccgcgacaAgcgggctcagatcaccagcgcaagtgggagggcgcccgtagg
 cggagcagcgagagcctacctggagggcacgtgcgtggagtggctccgcagatacctggagaacgggaagAagac
 gctgcagcgcgcg (SEQ ID NO: 491701) ;

10 Cw*0505 :

gctcccaactccatgaggtattttctacaccgccgtgtcccggcccggccgaggagccccgcttcatcgcagtggg
 ctacgtggacgacacgcagttcgtgcagttcgacagcgacgccgcgagtcgaagaggggagccgcgggcgccgtgg
 gtggagcaggagggggccggagtattgggaccgggagacacagaagtacaagcgccaggcacagactgaccgagtga
 acctgcggaaactgcgcggctactacaaccagagcgaggccgggtctcacaccctccagaggatgtatggctgcga
 15 cGtggggcccgcgggcgcctcctccgcggggtataaccagtTcgccctacgacggcaaggattacatcgccctgaat
 gaggacctgcgctcctggaccgccgcgacaAgcgggctcagatcaccagcgcaagtgggagggcgcccgtagg
 cggagcagcgagagcctacctggagggcacgtgcgtggagtggctccgcagatacctggagaacgggaagAagac
 gctgcagcgcgcg (SEQ ID NO: 501702) ;

Cw*0506 :

20 gctcccaactccatgaggtattttctacaccgccgtgtcccggcccggccgaggagccccgcttcatcgcagtggg
 ctacgtggacgacacgcagttcgtgcagttcgacagcgacgccgcgagtcgaagaggggagccgcgggcgGgtgg
 gtggagcaggagggggccggagtattgggaccgggagacacagaagtacaagcgccaggcacagactgaccgagtga
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 cctggggcccgcgggcgcctcctccgcggggtataaccagttcgccctacgacggcaaggattacatcgccctgaat
 25 gaggacctgcgctcctggaccgccgcgacaaggcggtcagatcaccagcgcaagtgggagggcgcccgtagg
 cggagcagcgagagcctacctggagggcacgtgcgtggagtggctccgcagatacctggagaacgggaagaagac
 gctgcagcgcgcg (SEQ ID NO: 511703) ;

Cw*0602 :

atgcgggtcatggcgccccgaaccctcatcctgctgctctcgggagccctggccctgaccgagacctgggcctgct
 cccactccatgaggtatttcgacaccgccgtgtcccgccccggccgagagccccgcttcatctcagtgggcta
 cgtggacgacacgcagttcgtgcggttcgacagcgacgccgagtcgagaggggagccCcgggcgccgtgggtg
 5 gagcaggagggggcgagatttgggaccgggagacacagaagtacaagcgccaggcacaggctgaccgagtgaacc
 tgcggaaactgcgcggctactacaaccagagcgaggacgggtctcacaccctccagtggatgtatggctgcgacct
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 gacctgcgctcctggaccgcccgggacacggcggtcagatcacccagcgcaagtgggagggcgcccgtaggcgg
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 10 gcagcgcggaacacccaaagacacacgtgacccaccatcccgtctctgaccatgaggccaccctgaggtgctgg
 gccctgggcttctaccctgcggagatcacactgacctggcagcggtatggcgaggaccaaactcaggacaccgagc
 ttgtggagaccaggccagcaggagatggaaacctccagaagtgggcagctgtggtggtgccttctggagaagagca
 gagatacacgtgcatgtgcagcacgaggggctgccagagccccctcacctgagatgggagccatcttcccagccc
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 15 ttgtgatgtgtaggaggaagagctcaggtggaaaaggaggagctgctctcaggctgcgtccagcaacagtgccca
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Cw*0603 :

gctccactccatgaggtatttctacaccgcTgtgtccggccccggccgagagccccgcttcatctcagtggg
 ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgagtcgagaggggagccCcgggcgccgtgg
 20 gtggagcaggagggggcgagatttgggaccgggagacacagaagtacaagcgccaggcacaggctgaccgagtga
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 gaggacctgcgctcctggaccgcccgggacacggcggtcagatcacccagcgcaagtgggagggcgcccgtaggg
 cggagcagTggagagcctacctggagggcacgtgcgtggagtggctccgcagatacctggagaacgggaaggagac
 25 gctgcagcgcgcg (SEQ ID NO: 531705) ;

Cw*0604 :

gctccactccatgaggtatttgcacaccgccgtgtccggccccggccgagagccccgcttcatctcagtggg

ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgcgagtcgagaggggagccCcgggcgccgtgg
 gtggagcaggaggggcccggagtattgggaccgggagacacagaagtacaagcgccaggcacaggctgaccgagtga
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 cctggggcccgcgggcgcctcctccgcgggtatgaccagtcgcctacgacggcaaggattacatcgccctgaac
 5 gaggacctgcgctcctggaccgccgcggacacggcggctcagatcaccagcgcaagtgggagggcgcccgtagg
 cggagcagcTgagagcctacctggagggcacgtgcgtggagtggctccgcagatacctggagaacgggaaggagac
 gctgcagcgcgcg (SEQ ID NO: 541706) ;

Cw*0605 :

gctccactccatgaggtatttcgacaccgccgtgtcccggcccggcgaggagccccgcttcatctcagtggg
 10 ctacgtggacgacacgcagttcgtgcagttcgacagcgacgccgcgagtcCAagaggggagccCcgggcgccgtgg
 gtggagcaggaggggcccggagtattgggaccgggagacacagaagtacaagcgccaggcacagactgaccgagtga
 acctgcggaaactgcgcggctactacaaccagagcgaggacgggtctcacaccctccagtggatgtatggctgcga
 cctggggcccgcgggcgcctcctccgcgggtatgaccagtCgcctacgacggcaaggattacatcgccctgaac
 gaggacctgcgctcctggaccgccgcggacacGcgggctcagatcaccagcgcaagtgggagggcgcccgtagg
 15 cggagcagcgagagcctacctggagggcacgtgcgtggagtggctccgcagatacctggagaacgggaaggagac
 gctgcagcgcgcg (SEQ ID NO: 551707) ;

Cw*0606 :

gctccactccatgaggtatttcgacaccgccgtgtcccggcccggcgaggagccccgcttcatctcagtggg
 ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgcgagtcgagaggggagccCcgggcgccgtgg
 20 gtggagcaggaggggcccggagtattgggaccgggagacacagaagtacaagcgccaggcacaggctgaccgagtga
 acctgcggaaactgcgcggctactacaaccagagcgaggacgggtctcacaccctccagtggatgtatggctgcga
 cctggggcccgcgggcgcctcctccgcgggtatgaccagtcgcctacgacggcaaggattacatcgccctgaac
 gaggacctgcgctcctggaccgccgcggacacggcggctcagatcaccagcgcaagtgggagggcgcccgtagg
 cggagcagcgagagcctacctggagggcacgtgcgtggagtggctccgcagatacctggagaacgggaaggagac
 25 gctgcagcgcgcggaacacccaaagacacacgtgaccaccatcccgctcttgacctgaggccaccctgaggtgc
 tgggccctgggcttctaccctgcggagatcacactgacctggcagcgggatggcgaggaccaaactcaggacaccg
 agcttgtggagaccaggccagcaggagatggaaccttcagaagtgggcagctgtggtggtgccttctggagaaga

gcagagatacacgtgccatgtgcagcacgaggggctgccagagccccctaccctgagatgggagccatcttccag
cccaccatccccatcgtgggcatcgttgctggcctggctgtcctggctgtcctagctgtcctaggagctgtgAtgg
ctgttgatgtgtaggaggaagagctcag (SEQ ID NO: ~~56~~1708) ;

Cw*0607 :

5 gctcccaactccatgaggtatttcgacaccgccgtgtccggccccggccgagagccccgcttcattctcagtggg
ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgagtcgagaggggagccccgggcccgtgg
gtggagAaggaggggcccggagtattgggaccgggagacacagaagtacaagcgccaggcacaggctgaccgagtga
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cctggggccccgacgggcccctcctccgcggtatgaccagtccgcctacgacggcaaggattacatcgccctgaac
10 gaggacctgcgtcctggaccgccgacacggcggtcagatcaccagcgcaagtgggagggcccgtgagg
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gctgcagcgccgg (SEQ ID NO: ~~57~~1709) ;

Cw*0608 :

gctcccaactccatgaggtatttcgacaccgccgtgtccggccccggccgagagccccgcttcattctcagtggg
15 ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgagtcgagaggggagccccgggcccgtgg
gtggagcaggaggggcccggagtattgggaccgggagacacagaagtacaagcgccaggcacaggctgaccgagtga
acctgcggaaactgcgcggctactacaaccagagcgaggAcgggtctcacaccctccagtggatgtatggctgcga
cctggggccccgacgggcccctcctccgcggtatgaccagtCgcctacgacggcaaggattacatcgccctgaac
gaggacctgcgtcctggaccgccgacacGcggtcagatcaccagcgcaagtgggagggcccgtgagg
20 cggagcagTggagagcctacctggagggcgAgtgcgtggagtggctccgcagatacctggagaacgggaaggagac
gctgcagcgccgg (SEQ ID NO: ~~58~~1710) ;

Cw*0609 :

gctcccaactccatgaggtatttcgacaccgccgtgtccggccccggccgagagccccgcttcattctcagtggg
ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgagtcgagaggggagccCgggcccgtgg
25 gtggagcaggaggggcccggagtattgggaccgggagacacagaagtacaagcgccaggcacaggctgaccgagtga
acctgcggaaactgcgcggctactacaaccagagcgaggacgggtctcacaccctccagtggatgtatggctgcga
cctggggccccgacgggcccctcctccgcggtataaccagtTgcctacgacggcaaggattacatcgccctgaac

gaggacctgcgtccttgaccgccgacacggcggtcagatcacccagcgcaagtgggaggcgcccgtagg
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gctgcagcgccgg (SEQ ID NO: ~~59~~1711) ;

Cw*070101 :

5 atgcgggtcatggcgccccgagccctcctcctgctgctctcgggaggcctggccctgaccgagacctgggcctgct
cccactccatgaggtatttcgacaccgctgtcccggcccgccgagagccccgcttcatctcagtgggcta
cgtggacgacacgcagttcgtgcggttcgacagcgacgcccgcgagtcgcgaggggagccgcgggcgccgtgggtg
gagcaggagggcgcgagtattgggaccgggagacacagaactacaagcgccaggcacaggctgaccgagttagcc
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gcagcgcgCAgaacccccaaagacacacgtgacccaccacccccctctctgaccatgaggccaccctgaggtgctgg
gccctgggcttctaccctgcggagatcacactgacctggcagcgggatggggaggaccagaccaggacaccgagc
15 ttgtggagaccaggccagcaggagatggaaccttcagaagtgggcagctgtggtggtgccttctggacaagagca
gagatacacgtgccatattgcagcacgaggggctgcaagagccccctcacctgagctgggagccatcttcccagccc
accatccccatcatgggcacgttgctggcctggctgtcctggttgcttagctgtccttgagctgtggtcaccg
ctatgatgttaggaggaagagctcaggtggaaggaggagctgctctcaggctgcgtgcagcaacagtgccca
gggctctgatgagtctctcatcActtgtaa (SEQ ID NO: ~~60~~1712) ;

20 Cw*070102 :

atgcgggtcatggcgccccgagccctcctcctgctgctctcgggaggcctggccctgaccgagacctgggcctgct
cccactccatgaggtatttcgacaccgctgtcccggcccgccgagagccccgcttcatctcagtgggcta
cgtggacgacacgcagttcgtgcggttcgacagcgacgcccgcgagtcgcgaggggagccgcgggcgccgtgggtg
gagcaggagggcgcgagtattgggaccgggagacacagaactacaagcgccaggcacaggctgaccgagttagcc
25 tgcggaacctgcgcggtactacaaccagagcgaggacgggtctcacaccctccagaggatgtatggctgcgacct
ggggcccgcgccccctcctccgcggtatgaccagtcgcctacgacggcaaggattacatgccctgaacgag
gacctgcgctccttgaccgcccgacaccgcggtcagatcacccagcgcaagtTggaggcgcccgtagcgccg

agcagctgagagcctacctggagggcacgtgctggagtggctccgcagataacctggagaacgggaaggagacgct
gcagcgcgcagaacccccaaagacacacgtgaccaccacccccctctctgaccatgaggccaccctgaggtgctgg
gccctgggcttctacctgaggatcacactgacctggcagcgggatggggaggaccagaccaggacaccgagc
ttgtggagaccaggccagcaggagatggaaccttcagaagtgggcagctgtggtggtgccttctggacaagagca
5 gagatacacgtgccatatgcagcacgaggggctgcaagagccccctaccctgagctgggagccatcttccagccT
accatccccatcatgggcatcgttgctggcctggctgtcctggttgcttagctgtccttgagctgtggtcaccg
ctatgatgtgtaggaggaagagctcaggtggaaaaggaggagctgctctcaggctgcgtgcagcaacagtgccca
gggctctgatgagtctctcatcacttgtaa (SEQ ID NO: ~~61~~1713) ;

Cw*070201 :

10 atgcgggtcatggcgccccgagccctcctcctgctgctctcgggaggcctggccctgaccgagacctgggcctgct
cccactccatgaggtatttcgacaccgccgtgtcccgcccgccgcggagagccccgcttcatctcagtgggcta
cgtggacgcacgcagttcgtgcggttcgacagcgacgcgcgagtcgagaggggagccgcgggcgcgctgggtg
gagcaggagggggcgagtttgggaccgggagacacagaagtacaagcggcaggcacaggctgaccgagtgcg
tgcggaacctgcgcggctactacaaccagagcgaggacgggtctcacaccctccagaggatgtctggtgcgacct
15 ggggcccgcagggcgccctcctccgcgggtatgaccagtcgcctacgacggcaaggattacatcgccctgaacgag
gacctgcgctcctggaccgccgcggacaccgcggctcagatcaccagcgcaagtTggaggcggcccgctgcggcgg
agcagctgagagcctacctggagggcacgtgctggagtggctccgcagataacctggagaacgggaaggagacgct
gcagcgcgcagaacccccaaagacacacgtgaccaccacccccctctctgaccatgaggccaccctgaggtgctgg
gccctgggcttctacctgaggatcacactgacctggcagcgggatggggaggaccagaccaggacaccgagc
20 ttgtggagaccaggccagcaggagatggaaccttcagaagtgggcagctgtggtggtgccttctggacaagagca
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ctatgatgtgtaggaggaagagctcaggtggaaaaggaggagctgctctcaggctgcgtgcagcaacagtgccca
gggctctgatgagtctctcatcActtgtaa (SEQ ID NO: ~~62~~1714) ;

25 Cw*0703 :

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ggtggagcaggagggccggagtattgggaccgggagacacagaagtacaagcgccaggcacaggctgaccgagtg
 agcctgcggaacctgcgcggctactacaaccagagcgaggacgggtctcacaccctccagaggatgtctggctgcg
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 cgaggacctgcgctcctggaccgcgggacaccgcggtcagatcaccagcgcaagtgggaggcgcccgctgcg
 5 gcgagcagctgagagcctacctggagggActgtgcgtggagtggctccgcagataacctggagaacgggaaggaga
 cgctgcagcgcgcagaacccccaaagacacacgtgaccaccaccctctctgacctgaggccacctgaggtg
 ctgggcccctgggcttctaccctgcggagatcacactgacctggcagcgggatggggaggaccagaccaggacacc
 gagcttgtggagaccaggccagcaggagatggaaccttcagaagtgggcagctgtggtggtgccttctggacaag
 agcagagatacacgtgccatatgcagcacgaggggctgcaagagcccctcacctgagctgggagccatcttccca
 10 gccaccatccccatcatgggcatcgttgcctggctgtcctggttgcttagctgtccttggagctgtggtc
 accgctatgatgtgtaggaggaagagctcaggtggaaaaggaggagctgctctcaggctgcgtgcagcaacagt
 ccagggtctgatgagtctctcatcacttgtaa (SEQ ID NO: 631715) ;
 Cw*070401 :
 atgcgggtcatggcgccccgagccctcctcctgctgctctcgggaggcctggccctgaccgagacctgggcctgct
 15 ccactccatgaggtatttcgacaccgccgtgtcccgcccgccgcggagagccccgcttcatctcagtgggcta
 cgtggacgacacgcagttcgtgcggttcgacagcgacgcccgcgagtcgagaggggagccccggcgccgtgggtg
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 tgcggaacctgcgcggctactacaaccagagcgaggacgggtctcacaccttcagaggatgtatggctgcgacct
 ggggcccgcggcgccctcctccgcggtatgaccagttcgctacgacggcaaggattacatcgccctgaacgag
 20 gacctgcgctcctggaccgccgagacaccgcggtcagatcaccagcgcaagtgggaggcgcccgctgcggcgg
 agcaggaCagagcctacctggagggcacgtgcgtggagtggctccgcagataacctggagaacgggaagaagacgct
 gcagcgcgcgggaacccccaaagacacacgtgaccaccaccctctctgacctgaggccacctgaggtgctgg
 gccctgggcttctaccctgcggagatcacactgacctggcagcgggatggggaggaccagaccaggacaccgagc
 ttgtggagaccaggccagcaggagatggaaccttcagaagtgggcagctgtggtggtgccttctggacaagagca
 25 gagatacacgtgccatatgcagcacgaggggctgcaagagcccctcacctgagctgggagccatcttccagccc
 accatccccatcatgggcatcgttgcctggctgtcctggttgcttagctgtccttggagctgtggtcaccg
 ctatgatgtgtaggaggaagagctcaggtggaaaaggaggagctgctctcaggctgcgtgcagcaacagtgccca

gggctctgatgagtctctcatcActtgtaa (SEQ ID NO: ~~64~~1716) ;

Cw*070402 :

atgcgggtcatggcgccccgagccctcctcctgctgctctcgggaggcctggccctgaccgagacctgggcctgct
 cccactccatgaggtatttcgacaccgccgtgtcccggcccgccgagagccccgcttcatctcagtgaggcta
 5 cgtggacgacacgcagttcgtgcggttcgacagcgacgccgcgagtcgagaggggagccccggcgccgtgggtg
 gagcaggagggggccggagtattgggaccgggagacacagaagtacaagcgccaggcacaggctgaccgagttagcc
 tgcggaacctgcgcggctactaTaaccagagcgaggacgggtctcacaccttccagaggatgtatggctgcgacct
 ggggcccgcggcgccctcctccgcgggtatgaccagttcgcctacgacggcaaggattacatcgccctgaacgag
 gacctgcgctcctggaccgcccgccgacaccgcggctcagatcacccagcgcaagttggaggcggcccgctgcggcgg
 10 agcaggacagagcctacctggagggcacgtgcgtggagtggctccgcagataacctggagaacgggaagaagacgct
 gcagcgcgcggaacccccaaagacacacgtgaccaccacccccctctctgacctgaggccaccctgaggtgctgg
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 ttgtggagaccaggccagcaggagatggaaccttcagaagtgggcagctgtggtggcttcttgacaagagca
 gagatacacgtgcatatgcagcacgaggggctgcaagagccccctaccctgagctgggagccatcttcccagccc
 15 accatccccatcatgggcatcgttgctggcctggctgtcctggttgctcctagctgtccttgagctgtggtcaccg
 ctatgatgtgtaggaggaagagctcaggtggaaaaggaggggagctgctctcaggctgcgtgcagcaacagtgccca
 gggctctgatgagtctctcatcacttgtaa (SEQ ID NO: ~~65~~1717) ;

Cw*0705 :

gctccactccatgaggtatttcgacaccgccgtgtcccggcccgccgagagccccgcttcatctcagtgagg
 20 ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgcgagtcgagaggggagccggcgccgtgg
 gtggagcaggagggggccggagtattgggaccgggagacacagaagtacaagcgccaggcacaggctgaccgagtga
 gcctgcggaacctgcgcggctactacaaccagagcgaggacgggtctcacaccctccagaaTatgtatggctgcga
 cctggggcccgcggcgccctcctccgcgggtatgaccagtcgcctacgacggcaaggattacatcgccctgaac
 gaggacctgcgctcctggaccgcccgccgacaccgcggctcagatcacccagcgcaagttggaggcggcccgctgcgg
 25 cggagcagctgagagcctacctggagggcacgtgcgtggagtggctccgcagataacctggagaacgggaaggagac
 gctgcagcgcgcag (SEQ ID NO: ~~66~~1718) ;

Cw*0706 :

atgcgggtcatggcgccccgagccctcctcctgctgctctcgggaggcctggccctgaccgagacctgggcctgct
 cccactccatgaggtatttcgacaccgccgtgtcccggcccgccgagagccccgcttcattctcagtgggcta
 cgtggacgacacgcagttcgtgcggttcgacagcgacgccgagtcgagaggggagccgcgggcgccgtgggtg
 gagcaggagggggccggagtattgggaccgggagacacagaactacaagcgccaggcacaggctgaccgagtgagcc
 5 tgcggaacctgcgcggctactacaaccagagcgaggacgggtctcacaccctccagaggatgtatggctgcgacct
 ggggcccgcggcgccctcctccgcggtatgaccagtccgcctacgacggcaaggattacatcgccctgaacgag
 gacctgcgctcctggaccgcccgagacaccgcggtcagatcaccagcgcaagttggaggcgcccggtgcggcgg
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 gcagcgcgagaaacccccaaagacacacgtgaccaccacccccctctctgacctgaggccaccctgagggtgctgg
 10 gccctgggcttctacctgcggagatcacactgacctggcagcgggatggggaggaccagaccaggacaccgagc
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 ctaAgatgtgtaggaggaagagctcaggtggaaaaggaggagctgctctcaggttgcgtgcagcaacagtgccca
 15 gggctctgatgagtctctcatcacttgtaa (SEQ ID NO: 671719) ;

Cw*0707 :

gctccactccatgaggtatttcgacaccgccgtgtcccggcccgccgagagccccgcttcattctcagtggg
 ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgagtcgagaggggagccgcgggcgccgtgg
 gtggagcaggagggggccggagtattgggaccgggagacacagaactacaagcgccaggcacaggctgaccgagtga
 20 acctgcggaaActgcgcggctactacaaccagagcgaggccgggtctcacaccctccagaggatgtAtggctgcga
 cctggggcccgcggcgccctcctccgcggtatgaccagtGcgctacgacggcaaggattacatcgccctgaac
 gaggacctgcgctcctggaccgccgacaccggcgtcagatcaccagcgcaagtTggaggcgcccggtgcgg
 cggagcagctgagagcctacctggagggcacgtgcgtggagtggctccgcagatacctggagaacgggaaggagac
 gctgcagcgcgAg (SEQ ID NO: 681720) ;

25 Cw*0708 :

gctccactccatgaggtatttcgacaccgccgtgtcccggcccgccgagagccccgcttcattctcagtggg
 ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgagtcgagaggggagccgcgggcgccgtgg

gtggagcaggagggcgcgagtagtattgggaccgggagacacagaagtacaagcgccaggcacaggctgaccgagtga
gcctgcggaacctgcgcggctactacaaccagagcgaggacgggtctcacaccctccagaggatgtTtggctgcga
cctggggccccgacgggcgcctcctccgcggtatgaccagtCcgctacgacggcaaggattacatcgccctgaac
gaggacctgcgctcctggaccgccgcgacaccgcggtcagatcaccagcgcaagtTggaggcgcccgtgcgg
5 cggagcagctgagagcctacctggagggcacgtgcgtggagtggctccgagatacctggagaacgggaaggagac
gctgcagcgcgAg (SEQ ID NO: 691721) ;

Cw*0709 :

gctccactccatgaggtatttcgacaccgccgtgtccggccccggcgaggagccccgcttcatctcagtggg
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10 gtggagcaggagggcgcgagtagtattgggaccgggagacacagaactacaagcgccaggcacaggctgaccgagtga
acctgcggaaActgcgcggctactacaaccagagcgaggAcgggtctcacaccctccagaggatgtAtggctgcga
cctggggccccgacgggcgcctcctccgcggtatgaccagtCcgctacgacggcaaggattacatcgccctgaac
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cggagcagctgagagcctacctggagggcacgtgcgtggagtggctccgagatacctggagaacgggaaggagac
15 gctgcagcgcgAg (SEQ ID NO: 701722) ;

Cw*0710 :

gctccactccatgaggtatttcgacaccgccgtgtccggccccggcgaggagccccgcttcatctcagtggg
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gtggagcaggagggcgcgagtagtattgggaccgggagacacagaagtacaagcgccaggcacaggctgaccgagtga
20 gcctgcggaacctgcgcggctactacaaccagagcgaggacgggtctcacatcAtccagaggatgtCtggctgcga
cctggggccccgacgggcgcctcctccgcggtatgaccagtCcgctacgacggcaaggattacatcgccctgaac
gaggacctgcgctcctggaccgccgcgacaccgcggtcagatcaccagcgcaagtTggaggcgcccgtgcgg
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25 Cw*0711 :

atgcgggtcatggcgccccgagccctcctcctgctgctctcgaggaggcctggccctgaccgagacctgggcctgct
ccactccatgaggtatttcgacaccgccgtgtccggccccggcgaggagccccgcttcatctcagtgggcta

cgtggacgacacgcagttcgtgcggttcgacagcgacgccgagtcgagaggggagccccgggcgccgtgggtg
 gagcaggagggggccgagttattgggaccgggagacacagaagtacaagcgccaggcacaggctgaccgagttagcc
 tgcggaacctgcgcggctactacaaccagagcgaggacgggtctcacaccttcagaggatgtatggctgcgacct
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 5 gacctgcgctcctggaccgcccgacaccgcggtcagatcacccagcgcaagttggaggcgcccgctgcggcgg
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 gcagcgcgagggaacccccaaagacacacgtgacccaccacccccctctctgaccatgaggccaccctgaggtgctgg
 gccctgggcttctacctgcggagatcacactgacctggcagcgggatggggaggaccagaccaggacaccgagc
 ttgtggagaccaggccagcaggagatggaaccttcagaagtgggcagctgtggtggctgccttctggacaagagca
 10 gagatacacgtgccatatgcagcacgaggggctgcaagagccccctacccctgagctgggagccatcttcccagccc
 accatccccatcatgggcatcgttgctggcctggctgtcctggttgctcctagctgtccttgagctgtggtcacccg
 ctatgatgtgtaggaggaagagctcaggtggaagaggaggagctgctctcaggctgcgtGcagcaacagtgccca
 gggctctgatgagtctctcatcgcttgtaa (SEQ ID NO: 721724) ;

Cw*0712 :

15 gctccactccatgaggtatttcgacaccgccgtgtcccggccggccgagagccccgcttcatctcagtggg
 ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgagtcgagaggggagccccgggcgccgtgg
 gtggagcaggagggggccgagttattgggaccgggagacacagaagtacaagcgccaggcacaggctgaccgagtga
 gcctgcggaacctgcgcggctactacaaccagagcgaggacgggtctcacaccttcagaggatgtatggctgcga
 cctggggcccgcgaggcgccctcctccgcggtatgaccagttcgctacgacggcaaggattacatcgccctgaac
 20 gaggacctgcgctcctggaccgccgagacaccgcggtcagatcacccagcgcaagttgggaggcgcccgctgcgg
 cggagcaggaGagagcctacctggaggggcacgtgctggagtggctccgcagatacctggagaacgggaagaagac
 gctgcagcgcgagg (SEQ ID NO: 731725) ;

Cw*0713 :

gctccactccatgaggtatttcgacaccgccgtgtcccggccggccgagagccccgcttcatctcagtggg
 25 ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgagtcgagaggggagccgaggcgccgtgg
 gtggagcaggagggggccgagttattgggaccgggagacacagaagtacaagcgccaggcacaggctgaccgagtga
 gcctgcggaacctgcgcggctactacaaccagagcgaggacgggtctcacaccttcagaggatgtGtggtgcga

cctggggcccgcggcgccctcctccgcggtatgaccagtTcgccctacgacggcaaggattacatcgccctgaac
gaggacctgcgctcctggaccgccgcgacaccgcggtcagatcaccagcgcaagtTggaggcgcccgtgcgg
cggagcagctgagagcctacctggagggcacgtgctggagtggctccgcagatacctggagaacgggaaggagac
gctgcagcgcAg (SEQ ID NO: 741726) ;

5 Cw*0714 :

gctccactccatgaggtatttcgacaccgccgtgtccggcccgccgagagccccgcttcatctcagtggg
ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgagtcgagaggggagccggcgccgtgg
gtggagcaggagggcgcgagtattgggaccgggagacacagaagtacaagcgccaggcacaggctgaccgagtga
gcctgcggaacctgcgcggtactacaaccagagcgaggacgggtctcacaccctccagaggatgtacggctgcga
10 cctggggcccgcggcgccctcctccgcggtatgaccagtccgcctacgacggcaaggattacatcgccctgaac
gaggacctgcgctcctggaccgccgcgacaccgcggtcagatcaccagcgcaagttggaggcgcccgtgcgg
cggagcagctgagagcctacctggagggcacgtgctggagtggctccgcagatacctggagaacgggaaggagac
gctgcagcgcAcag (SEQ ID NO: 751727) ;

Cw*0715 :

15 gctccactccatgaggtatttcgacaccgccgtgtccggcccgccgagagccccgcttcatctcagtggg
ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgagtcgagaggggagccggcgccgtgg
gtggagcaggagggcgcgagtattgggaccgggagacacagaagtacaagcgccaggcacaggctgaccgagtga
gcctgcggaacctgcgcggtactacaaccagagcgaggacgggtctcacaccctccagaggatgtctggctgcga
cctggggcccgcggcgccctcctccgcggtatgaccagtccgcctacgacggcaaggattacatcgccctgaac
20 gaggacctgcgctcctggaccgccgcgacaccgcggtcagatcaccagcgcaagttggaggcgcccgtgcgg
cggagcagctgagagcctacctggaggcgAgctgctggagtggctccgcagatacctggagaacgggaaggagac
gctgcagcgcAg (SEQ ID NO: 761728) ;

Cw*0716 :

gctccactccatgaggtatttcgacaccgccgtgtccggcccgccgagagccccgcttcatctcagtggg
25 ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgagtcgagaggggagccggcgccgtgg
gtggagcaggagggcgcgagtattgggaccgggagacacagaaCtacaagcgccaggcacaggctgaccgagtga
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5 Cw*0717 :

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Cw*0718 :

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Cw*080102 :

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5 Cw*0802 :

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Cw*0803 :

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- 10 Cw*0804 :
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- Cw*0805 :
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Cw*0806 :

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10 Cw*0807 :

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Cw*0808 :

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Cw*0809 :

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Cw*120201 :

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Cw*120202 :

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Cw*120203 :

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Cw*120301 :

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15 Cw*120302 :

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Cw*120401 :

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 Q ID NO: 951747) ;

Cw*120402 :

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15 gcagcgcggaacacccaaagacacacgtgaccaccatcccgctcttgacctgaggccaccctgaggtgctgg
gccctgggcttctacctgcggagatcacactgacctggcagcgggatggcgaggaccaaactcaggacaccgagc
ttgtggagaccaggccagcaggagatggaaccttcagaaagtgggcagctgtggtggtgccttctggagaagagca
gagatacacgtgccatgtgcagcacgaggggctgccggagccccctaccctgagatgggagccatcttccagccc
accatccccatcgtgggcatcgttgctggcctggctgtcctggctgtcctagctgtcctaggagctgtgAtggctg
20 ttgtgatgtgtaggaggaagagctcag (SEQ ID NO:4421764) ;

Cw*1507 :

gctcccactccatgaggtatttctacaccgctgtgtcccgcccgccggagagccccActtcatcgagtgagg
ctacgtggacgacacgcagttcgtgcggttcgacagcgacgcgcgagtcgaagaggggagccgcggcgccgtgg
gtggagcaggagggggccggagtattgggaccgggagacacagaaGtacaagcgccaggcacagactgaccgagtga
25 gcctgcggaacctgcgcggctactacaaccagagcgaggccgggtctcacatcatccagaggatgtatggctgcga
cctggggggcgacggcgccctcctccgcggtGatgaccagttAgcctacgacggcaaggattacatcgccctgaac
gaggacctgcgctcctggaccgcccgacacggcggtcagatcaccagcgcaagtgggagggcgcccgtaggg

cggagcagcTgagagcctacctggagggcacgtgcgtggagtggctccgcagatacctggagaacgggaaggagac
gctgcagcgcgcgg (SEQ ID NO:4431765) ;

Cw*1508 :

gctccactccatgaggtatttctacaccgctgtgtccggcccgccggagagccccActtcatcgcagtggg
5 ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgcgagtcgaagaggggagccgcggcgccgtgg
gtggagcaggaggggcccggagtattgggaccgggagacacagaaCtacaagcgccaggcacagactgaccgagtga
acctgcggaaActgcgcggctactacaaccagagcgaggccgggtctcacatcAtccagaggatgtatggctgcga
cctggggcccgcgggcgcctcctccgcccGatgaccagttAgcctacgacggcaaggattacatgccctgaac
gaggacctgcgctcctggaccgccgggacacggcggtcagatcaccagcgcaagtgggagggcgccgtgagg
10 cggagcagcggagagcctacctggagggcacgtgcgtggagtggctccgcagatacctggagaacgggaaggagac
gctgcagcgcgcgg (SEQ ID NO:4441766) ;

Cw*1509 :

gctccactccatgaggtatttctacaccgctgtgtccggcccgccggagagccccacttcatcgcagtggg
ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgcgagtcgaagaggggagccgcggcgccgtgg
15 gtggagcaggaggggcccggagtattgggaccgggagacacagaactacaagcgccaggcacagactgaccgagtga
acctgcggaaactgcgcggctactacaaccagagcgaggccgggtctcacatcatccagaggatgtatggctgcga
cctggggcccgcgggcgcctcctccgcccGatgaccagtCgcctacgacggcaaggattacatgccctgaac
gaggacctgcgctcctggaccgccgggacacggcggtcagatcaccagcgcaagtgggagggcgccgtgagg
cggagcagcTgagagcctacctggagggcacgtgcgtggagtggctccgcagatacctggagaacgggaaggagac
20 gctgcagcgcgcgg (SEQ ID NO:4451767) ;

Cw*1510 :

gctccactccatgaggtatttctacaccgctgtgtccggcccgccggagagccccgcttcatcgcagtggg
ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgcgagtcgaagaggggagccgcggcgccgtgg
gtggagcaggaggggcccggagtattgggaccgggagacacagaaCtacaagcgccaggcacagactgaccgagtga
25 acctgcggaaActgcgcggctactacaaccagagcgaggccgggtctcacatcatccagaggatgtatggctgcga
cctggggcccgcgggcgcctcctccgcccGatgaccagttAgcctacgacggcaaggattacatgccctgaac
gaggacctgcgctcctggaccgccgggacacggcggtcagatcaccagcgcaagtgggagggcgccgtgagg

cggagcagcTgagagcctacctggagggcacgtgctggagtggtccgcagatacctggagaacgggaaggagac
gctgcagcgcgcgg (SEQ ID NO: 4461768) ;

Cw*1511 :

gctccactccatgaggtatttctacaccgtgtgtcccgcccAgccgcggagagccccActtcatcgcagtggg
5 ctacgtggacgacacgcagttcgtgcggttcgacagcgacgccgcgagtgcaagaggggagccgcggcgccgtgg
gtggagcaggagggggcgagttatgggaccgggagacacagaagtacaagccaggcacagactgaccgagtga
acctgcggaaActgcgcggctactacaaccagagcgagggcggtctcacatcatccagaggatgtatggctgcga
cctggggcccgcggcgccctcctccgctggGatgaccagttAgcctacgacggcaaggattacatcgccctgaac
gaggacctgcgctcctggaccgccgcggacacggcgctcagatcacccagcgcaagtgggagggcgccgtgagg
10 cggagcagcTgagagcctacctggagggcacgtgctggagtggtccgcagatacctggagaacgggaaggagac
gctgcagcgcgcgg (SEQ ID NO: 4471769) ;

Cw*1601 :

atgcgggtcatggcgccccgaaccctcatcctgctgctctcgggagccctggccctgaccgagacctggcctgct
cccactccatgaggtatttctacaccgccgtgtcccgcccgccgcggagagccccgcttcatcgcagtgggcta
15 cgtggacgacacgcagttcgtgcggttcgacagcgacgccgcgagtgcaagaggggagccgcggcgccgtgggtg
gagcaggagggggcgagttatgggaccgggagacacagaagtacaagcgccaggcacagactgaccgagtgagcc
tgcggaacctgcgcggctactacaaccagagcgagggcggtctcacaccctccagtggatgtatggctgcgacct
ggggcccgacggcgccctcctccgctgtatgaccagtcgcctacgacggcaaggattacatcgccctgaacgag
gacctgcgctcctggaccgccgcggacacggcgctcagatcacccagcgcaagtgggagggcgccgtgcggcg
20 agcagcAgagagcctacctggagggcacgtgctggagtggtccgcagatacctggagaacgggaaggagacgct
gcagcgcgcggaacacccaaagacacacgtgaccaccatctcgtctctgacctgaggccaccctgaggtgctgg
gccctgggcttctaccctgcggagatcacactgacctggcagcggtatggcgaggaccaaactcaggacaccgagc
ttgtggagaccaggccagcaggagatggaaccttcagaagtgggcagctgtggtggcttctggagaagagca
gagatacacgtgccatgtgcagcacgaggggtgccggagccctcacctgagatgggagccatcttccagccc
25 accatccccatcgtgggcatcgttgctggcctggctgtcctggctgtcctagctgtcctaggagctgtggtggctg
ttgtTatgtgtaggaggaagagctcaggtggaaaaggaggagctgctctcaggctgcgtccagcaacagtgccca
gggctctgatgagtctctcatcgctttaa (SEQ ID NO: 4481770) ;

Cw*1602 :

atgcgggtcatggcgccccgaaccctcatcctgctgctctcgggagccctggccctgaccgagacctgggcctgct
 cccactccatgaggtatttctacaccgccgtgtcccggcccgccgcggagagccccgcttcatcgagtgaggcta
 cgtggacgacacgcagttcgtgcggttcgacagcgacgccgcgagtcgaagaggggagccgcgggcccgtgggtg
 5 gagcaggagggggcgagatttgggaccgggagacacagaagtacaagcgccaggcacagactgaccgagtgaacc
 tgcggaaActgcgcggctactacaaccagagcgaggccgggtctcacaccctccagtggatgtatggctgcgacct
 ggggcccgcggcgccctcctccgcggtatgaccagtccgcctacgacggcaaggattacatgccctgaacgag
 gacctgcgctcctggaccgccgcggacacggcggtcagatcacccagcgcaagtgggagggcgcccgctgcggcgg
 agcagcAgagagcctacctggagggcacgtgcgtggagtggctccgcagatacctggagaacgggaaggagacgct
 10 gcagcgcggaacacccaaagacacacgtgacccaccatctcgtctctgacctgaggccaccctgaggtgctgg
 gccctgggcttctaccctgcggagatcacactgacctggcagcgggatggcgaggaccaaactcaggacaccgagc
 ttgtggagaccaggccagcaggagatggaaccttcagaagtgggcagctgtggtggtgccttctggagaagagca
 gagatacacgtgcatgtgcagcacgaggggctgccggagcccctcacctgagatgggagccatcttcccagccc
 accatccccatcgtggcatcgttgctggcctggctgtcctggctgtcctagctgtccttaggagctgtggtgctg
 15 ttgtTatgttaggaggaagagctcaggtggaaaaggaggagctgctctcaggctgcgtccagcaacagtgccca
 gggctctgatgagtctctcatcgcttgtaa (SEQ ID NO: ~~149~~1771) ;

Cw*160401 :

atgcgggtcatggcgccccgaaccctcatcctgctgctctcgggagccctggccctgaccgagacctgggcctgct
 cccactccatgaggtatttctacaccgccgtgtcccggcccgccgcggagagccccgcttcatcgagtgaggcta
 20 cgtggacgacacgcagttcgtgcggttcgacagcgacgccgcgagtcgaagaggggagccgcgggcccgtgggtg
 gagcaggagggggcgagatttgggaccgggagacacagaagtacaagcgccaggcacagactgaccgagttagcc
 tgcggaaacctgcgcggctactacaaccagagcgaggccgggtctcacaccctccagtggatgtatggctgcgacct
 ggggcccgcggcgccctcctccgcggtatgaccagtccgcctacgacggcaaggattacatgccctgaacgag
 gacctgcgctcctggaccgccgcggacacggcggtcagatcacccagcgcaagtgggagggcgcccgctgcggcgg
 25 agcagTggagagcctacctggagggcacgtgcgtggagtggctccgcagatacctggagaacgggaaggagacgct
 gcagcgcggaacacccaaagacacacgtgacccaccatctcgtctctgacctgaggccaccctgaggtgctgg
 gccctgggcttctaccctgcggagatcacactgacctggcagcgggatggcgaggaccaaactcaggacaccgagc

ttgtggagaccaggccagcaggagatggaaccttcagaaagtgggcagctgtggtggtgccttctggagaagagca
gagatacacgtgccatgtgcagcacgaggggctgccggagcccctcaccctgagatgggagccatcttccagccc
accatccccatcgtgggcatcgttgctggcctggctgtcctggctgtcctagctgtcctaggagctgtggtggctg
ttgtTatgtgtaggaggaagagctcag (SEQ ID NO:4201772) ;

5 Cw*1701 :

atgcgggtcatggcgccccaaagccctcctcctgctgtctcgggagccctggccctgatcgagacctgggcccggct
cccactccatgaggtatttctacaccgctgtcccggcccgccggagagccccgcttcatcgagtgaggcta
cgtggacgacacgcagttcgtcggttcgacagcgacgccgcgagtcgagaggggagccgcccggcgccgtgggtg
gagcaggagggggccggagtattgggaccgggagacacagaagtacaagcgccaggcacaggctgaccgagtgaacc
10 tgcggaaactgcgcggtactacaaccagagcgaggccggttctcacaccatccagaggatgtatggctgcgacct
ggggcccgcggcgccctcctccgcggtataaccagttcgcctacgacggcaaggattacatgccctgaacgag
gacctgcgctcctggaccgcggcgacacggcggtcagatctccagcgcaagttggaggcgcccgtaggcgg
agcagctgagagcctacctggaggcgagtgctggagtggctccgcgatacctggagaacgggaaggagacgct
gcagcgcgaggaaacgccccaaagacacacgtgaccaccatcccgtctctgacctgaggccaccctgaggtgctgg
15 gccctgggcttctacctgaggatcacactgacctggcagcgggatggggaggacaaactcaggacaccgagc
ttgtggagaccaggccagcaggagatggaaccttcagaaagtgggcagctgtggtggtgccttctggacaagaaca
gagatacacgtgccatgtgcagcacgaggggctgcaggagcccctgcacctgagatggaagccgtcttccagccc
accatccccaacttgggcatcgtttctggcccagctgtcctggctgtcctggctgtcctagctgtcc
taggagctgtggtcgctgctgtgataC (SEQ ID NO:4211773) ;

20 Cw*1702 :

atgcgggtcatggcgccccgaaccctcatcctgctgtctcgggagccctggccctgatcgagacctgggcccggct
cccactccatgaggtatttctacaccgctgtcccggcccgccggagagccccgcttcatcgagtgaggcta
cgtggacgacacgcagttcgtcggttcgacagcgacgccgcgagtcgagaggggagccgcccggcgccgtgggtg
gagcaggagggggccggagtattgggaccgggagacacagaagtacaagcgccaggcacaggctgaccgagtgaacc
25 tgcggaaactgcgcggtactacaaccagagcgaggccggttctcacaccatccagaggatgtatggctgcgacct
ggggcccgcggcgccctcctccgcggtataaccagttcgcctacgacggcaaggattacatgccctgaacgag
gacctgcgctcctggaccgcggcgacacggcggtcagatctccagcgcaagttggaggcgcccgtaggcgg

agcagctgagagcctacctggagggcgagtgctggagtggtccgcggatacctggagaacgggaaggagacgct
gcagcgcgcggaacgcccgaagacacacgtgaccacccatcccgtctctgacctgaggccaccctgaggtgctgg
gccctgggcttctaccctgcggagatcacactgacctggcagcgggatggggaggaccaaactcaggacaccgagc
ttgtggagaccaggccagcaggagatggaaccttcagaagtgggcagctgtggtggtgccttctggacaagaaca
5 gagatacacgtgcatgtgcagcacgaggggctgcaggagccctgcaccctgagatgga (SEQ ID
NO:4221774) ;

Cw*1703 :

atgcgggtcatggcgcccaagccctcctcctgctgctctcgggagccctggccctgatcgagacctggAccggct
cccactccatgaggtatttctacaccgccgtgtcccggcccgccgcggagagccccgcttcatcgagtgaggcta
10 cgtggacgacacgcagttcgtgcggttcgacagcgacgcgcgagtcgagaggggagcccgggcgccgtgggtg
gagcaggagggggcgagttattgggaccgggagacacagaagtacaagcggcaggcacaggctgaccgagtgaacc
tgcggaactgcgcggctactacaaccagagcgaggccggttctcacaccatccagaggatgtatggctgcgacct
ggggcccgacgggcgccctcctccgcggtataaccagttcgctacgacggcaaggattacatcgccctgaacgag
gacctgcgctcctggaccgcggcgacacggcggtcagatctcccagcgcaagttggaggcgcccgtaggcgg
15 agcagctgagagcctacctggagggcgagtgctggagtggtccgcggatacctggagaacgggaaggagacgct
gcagcgcgcggaacgcccgaagacacacgtgaccacccatcccgtctctgacctgaggccaccctgaggtgctgg
gccctgggcttctaccctgcggagatcacactgacctggcagcgggatggggaggaccaaactcaggacaccgagc
ttgtggagaccaggccagcaggagatggaaccttcagaagtgggcagctgtggtggtgccttctggacaagaaca
gagatacacgtgcatgtgcagcacgaggggctgcaggagccctgcaccctgagatggaagccgtcttccagccc
20 accatccccaacttgggcacgttttctggcccagctgtcctggctgtcctggctgtcctggtgtcctagctgtcc
taggagctgtggtcgctgctgtgatac (SEQ ID NO:4231775) ;

Cw*1801 :

atgcgggtcatggcgccccgagccctcctcctgctgctctcgggagggcctggccctgaccgagacctgggcctgct
cccactccatgaggtatttctacaccgccgtgtcccggcccgccgcggagagccccgcttcatctcagtgaggcta
25 cgtggacgacacgcagttcgtgcggttcgacagcgacgcgcgagtcgagaggggagccccggcgccgtgggtg
gagcaggagggggcgagttattgggaccgggagacacagaagtacaagcggcaggcacaggctgaccgagtgaacc
tgcggaactgcgcggctactacaaccagagcgaggacgggtctcacaccctccagaggatgtttggctgcgacct

ggggccggacggcgccctcctccgcggtataaccagttcgcctacgacggcaaggattacatcgccctgaacgag
 gatctgcgctcctggaccgcccgcgacacggcggtcagatcacccagcgcaagtgggaggcgcccgtaggagg
 agcagcggagagcctacctggagggcacgtgcgtggagtggctccgcagatacctggagaacgggaaggagacgct
 gcagcgcggaacacccaaagacacacgtgacccaccatcccgtctctgaccatgaggccaccctgaggtgctgg
 5 gccctgggcttctaccctgcggagatcacactgacctggcagtgggatggggaggaccaaactcaggacaccgagc
 ttgtggagaccaggccagcaggagatggaaccttcagaagtgggcagctgtggtggtgccttctggagaagagca
 gagatacacgtgcatgtgcagcacgaggggtgccggagccccctcacctgagatggAagccgtcttcccagccc
 accatccccatcgtggcatcgttgctggcctggctgtcctggTgtcctagctgtccttaggagctgtggtgctg
 ttgtgatgttaggaggaagagctcaggtggaaaaggaggagctgctctcaggctgcgtccagcaacagtgccca
 10 gggctctgatgagtctctcatcgctttaa (SEQ ID NO:1241776) ;
 Cw*1802 :
 atgcgggtcatggcgccccgagccctcctcctgctgctctcgggaggcctggccctgaccgagacctgggcctgct
 cccactccatgaggtatttcgacaccgctgtcccggccccggcgaggagccccgcttcatctcagtgggcta
 cgtggacgacacgcagttcgtcggttcgacagcgacccgcgagtcagaggggagccCcgggcgccgtgggtg
 15 gagcaggaggggccggagtattgggaccgggagacacagaagtacaagcgccaggcacaggctgaccgagtgaacc
 tgcggaaactgcgcggtactacaaccagagcgaggacgggtctcacaccctccagaggatgtttgctgcgacct
 ggggccccgacggcgccctcctccgcggtataaccagttcgcctacgacggcaaggattacatcgccctgaacgag
 gaTctgcgctcctggaccgcccgcgacacggcggtcagatcacccagcgcaagtgggaggcgcccgtaggagg
 agcagcggagagcctacctggagggcacgtgcgtggagtggctccgcagatacctggagaacgggaaggagacgct
 20 gcagcgcggaacacccaaagacacacgtgacccaccatcccgtctctgaccatgaggccaccctgaggtgctgg
 gccctgggcttctaccctgcggagatcacactgacctggcagtgggatggggaggaccaaactcaggacaccgagc
 ttgtggagaccaggccagcaggagatggaaccttcagaagtgggcagctgtggtggtgccttctggagaagagca
 gagatacacgtgcatgtgcagcacgaggggtgccggagccccctcacctgagatggAagccgtcttcccagccc
 accatccccatcgtggcatcgttgctggcctggctgtcctggctgtcctagctgtccttaggagctgtggtgctg
 25 ttgtgatgttaggaggaagagctcaggtggaaaaggaggagctgctctcaggctgcgtccagcaacagtgccca
 gggctctgatgagtctctcatcgctttaa (SEQ ID NO:1251777) ;

In the following, Probe Lists C1 and C2 are shown In Tables 9-1 to 9-4 and Tables 10-1 to 10-4 respectively.

Table 9-1

Probe No.	Base Sequence
0	c acc ctc cag tgg atg tG (SEQ ID No: 126 1778)
1	c cgc ggg tat gac cag tA (SEQ ID No: 127 1779)
2	g acc gcc gcg gac acC (SEQ ID No: 128 1780)
3	ag aag tgg gca gct gtg A (SEQ ID No: 129 1781)
4	c ctc ctc cgc ggg tat A (SEQ ID No: 130 1782)
5	g cgc tcc tgg acc gcT (SEQ ID No: 131 1783)
6	g cac gag ggg ctg ccA (SEQ ID No: 132 1784)
7	ct gtc cta gga gct gtg A (SEQ ID No: 133 1785)
8	c acc ctc cag agg atg tC (SEQ ID No: 134 1786)
9	gg gag gcg gcc cgt gT (SEQ ID No: 135 1787)
10	ggg cgc ctc ctc cgc A (SEQ ID No: 136 1788)
11	c aag tgg gag gcg gcc T (SEQ ID No: 137 1789)
12	c cgt gag gcg gag cag T (SEQ ID No: 138 1790)
13	a gtg aac ctg cgg aaa ctA (SEQ ID No: 139 1791)
14	cc ctg ggc ttc tac cct A (SEQ ID No: 140 1792)
15	g acc gcc gcg gac acA (SEQ ID No: 141 1793)
16	gct gtg tcc cgg ccc A (SEQ ID No: 142 1794)
17	g acc gcc gcg gac acG (SEQ ID No: 143 1795)
18	cc ctg aga tgg gag ccA (SEQ ID No: 144 1796)
19	gg tct cac acc ctc cag A (SEQ ID No: 145 1797)
20	cgc ggg tat gac cag tC (SEQ ID No: 146 1798)
21	gcc tac ctg gag ggc gA (SEQ ID No: 147 1799)
22	c tcc cac tcc atg agg tG (SEQ ID No: 148 1800)
23	cgc ggg cat gac cag ttA (SEQ ID No: 149 1801)
24	g gac caa act cag gac acT (SEQ ID No: 150 1802)
25	c aac cag agc gag gcc A (SEQ ID No: 151 1803)
26	ag gcc agg tct cac atc A (SEQ ID No: 152 1804)
27	g aag tgg gca gct gtg G (SEQ ID No: 153 1805)
28	gcg gac acg gcg gcC (SEQ ID No: 154 1806)
29	at ggc tgc gac gtg ggA (SEQ ID No: 155 1807)
30	g gcc ggg tct cac atc A (SEQ ID No: 156 1808)

Table 9-2

Probe No.	Base Sequence
31	c atc atc cag agg atg taC (SEQ ID No: 157 <u>1809</u>)
32	c cgc aga tac ctg aag aaT (SEQ ID No: 158 <u>1810</u>)
33	ct cac acc ctc cag agC (SEQ ID No: 159 <u>1811</u>)
34	ctc ctc cgc ggg tat gT (SEQ ID No: 160 <u>1812</u>)
35	ca cag act gac cga gtg aA (SEQ ID No: 161 <u>1813</u>)
36	cga gtg aac ctg cgg aaA (SEQ ID No: 162 <u>1814</u>)
37	gg atg tat ggc tgc gac G (SEQ ID No: 163 <u>1815</u>)
38	gcc tac ctg gag ggc cT (SEQ ID No: 164 <u>1816</u>)
39	gac cgg gag aca cag aaC (SEQ ID No: 165 <u>1817</u>)
40	g gag ccc cac ttc atc G (SEQ ID No: 166 <u>1818</u>)
41	cga gtg agc ctg cgg aaA (SEQ ID No: 167 <u>1819</u>)
42	cgc ggg tat gac tag ttA (SEQ ID No: 168 <u>1820</u>)
43	g gag gcg gcc cgt gC (SEQ ID No: 169 <u>1821</u>)
44	c tac aac cag agc gag gA (SEQ ID No: 170 <u>1822</u>)
45	cgt gag gcg gag cag cT (SEQ ID No: 171 <u>1823</u>)
46	cta gct gtc cta gga gct A (SEQ ID No: 172 <u>1824</u>)
47	ggc tac gtg gac gac acA (SEQ ID No: 173 <u>1825</u>)
48	gc cgc gga gag ccc cA (SEQ ID No: 174 <u>1826</u>)
49	g aga tac acg tgc cat gtT (SEQ ID No: 175 <u>1827</u>)
50	ga ggg gag ccg cgg gA (SEQ ID No: 176 <u>1828</u>)
51	c atc gca gtg ggc tac C (SEQ ID No: 177 <u>1829</u>)
52	c tgc gac ctg ggg ccG (SEQ ID No: 178 <u>1830</u>)
53	tc tcc aca tcc gtg tcc T (SEQ ID No: 179 <u>1831</u>)
54	c aag cgc cag gca cag G (SEQ ID No: 180 <u>1832</u>)
55	gg acc gcc gcg gac aA (SEQ ID No: 181 <u>1833</u>)
56	ctc act ctg aga tgg gG (SEQ ID No: 182 <u>1834</u>)
57	tg tgc gtg gag tgg ctG (SEQ ID No: 183 <u>1835</u>)
58	cc atc tct gac cat gag gT (SEQ ID No: 184 <u>1836</u>)
59	ac ctg gag aac ggg aag A (SEQ ID No: 185 <u>1837</u>)
60	c cgc ggg tat aac cag tT (SEQ ID No: 186 <u>1838</u>)

Table 9-3

Probe No.	Base Sequence
61	g gag ccg cgg gcg cG (SEQ ID No: 187 1839)
62	t ccg aga ggg gag ccC (SEQ ID No: 188 1840)
63	g agg tat ttc tac acc gcT (SEQ ID No: 189 1841)
64	c gac gcc gcg agt ccA (SEQ ID No: 190 1842)
65	gt cca aga ggg gag ccC (SEQ ID No: 191 1843)
66	gcg ccg tgg gtg gag A (SEQ ID No: 192 1844)
67	c acc ctc cag agg atg tA (SEQ ID No: 193 1845)
68	g atc acc cag cgc aag tT (SEQ ID No: 194 1846)
69	g acg ctg cag cgc gcA (SEQ ID No: 195 1847)
70	c tct gat gag tct ctc atc A (SEQ ID No: 196 1848)
71	gag cca tct tcc cag ccT (SEQ ID No: 197 1849)
72	ga gcc tac ctg gag ggA (SEQ ID No: 198 1850)
73	t gcg gcg gag cag gaC (SEQ ID No: 199 1851)
74	aac ctg cgc ggc tac taT (SEQ ID No: 200 1852)
75	g tct cac acc ctc cag aaT (SEQ ID No: 201 1853)
76	a gct gtg gtc acc gct aA (SEQ ID No: 202 1854)
77	c acc ctc cag agg atg tT (SEQ ID No: 203 1855)
78	ag gac ggg tct cac atc A (SEQ ID No: 204 1856)
79	ac atc atc cag agg atg tC (SEQ ID No: 205 1857)
80	tgc tct cag gct gcg tG (SEQ ID No: 206 1858)
81	c cgc ggg tat gac cag tT (SEQ ID No: 207 1859)
82	g gag acg ctg cag cgc A (SEQ ID No: 208 1860)
83	g ccc ctc acc ctg agC (SEQ ID No: 209 1861)
84	ggg agc tgc tct cag gT (SEQ ID No: 210 1862)
85	cgt acg gcg gag cag cT (SEQ ID No: 211 1863)
86	acc ctc cag agg atg taC (SEQ ID No: 212 1864)
87	tgg gag gcg gcc cgt A (SEQ ID No: 213 1865)
88	cgc aga tac ctg gag aac A (SEQ ID No: 214 1866)
89	gcc tac ctg gag ggc G (SEQ ID No: 215 1867)
90	ga tac ctg gag aac ggg G (SEQ ID No: 216 1868)

Table 9-4

Probe No.	Base Sequence
91	ac ctg cgc tcc tgg acT (SEQ ID No: <u>2171869</u>)
92	g cgc tcc tgg acc gcG (SEQ ID No: <u>2181870</u>)
93	a gag ccc cgc ttc atc G (SEQ ID No: <u>2191871</u>)
94	c acc ctc cag tgg atg tA (SEQ ID No: <u>2201872</u>)
95	cag tcc gcc tac gac gT (SEQ ID No: <u>2211873</u>)
96	a cag gct gac cga gtg G (SEQ ID No: <u>2221874</u>)
97	cac tcc atg agg tat ttc tC (SEQ ID No: <u>2231875</u>)
98	c acc ctc cag tgg atg tT (SEQ ID No: <u>2241876</u>)
99	a cag gct gac cga gtg aA (SEQ ID No: <u>2251877</u>)
100	atc gcc ctg aac gag gaT (SEQ ID No: <u>2261878</u>)
101	gc ctc ctc cgc ggg C (SEQ ID No: <u>2271879</u>)
102	tc atg gcg ccc cga acT (SEQ ID No: <u>2281880</u>)
103	cgc ggg cat gac cag tT (SEQ ID No: <u>2291881</u>)
104	cgc ggg cat gac cag tC (SEQ ID No: <u>2301882</u>)
105	gt gcg gcg gag cag cA (SEQ ID No: <u>2311883</u>)
106	gct gtg gtg gct gtt gtT (SEQ ID No: <u>2321884</u>)
107	cgt gcg gcg gag cag T (SEQ ID No: <u>2331885</u>)
108	tg gtc gct gct gtg ata C (SEQ ID No: <u>2341886</u>)
109	gg ctg cag gag ccc tG (SEQ ID No: <u>2351887</u>)
110	cc ctg atc gag acc tca A (SEQ ID No: <u>2361888</u>)
111	cc ctc acc ctg aga tgg A (SEQ ID No: <u>2371889</u>)
112	Ggc ctg gct gtc ctg gT (SEQ ID No: <u>2381890</u>)

Table 10-1

Probe No.	Base Sequence
0	g tgg atg tGt ggc tgc g (SEQ ID No: <u>2391891</u>)
1	at gac cag tAc gcc tac g (SEQ ID No: <u>2401892</u>)
2	gcg gac acC gcg gct c (SEQ ID No: <u>2411893</u>)
3	gca gct gtg Atg gtg cct (SEQ ID No: <u>2421894</u>)
4	cgc ggg tat AAC cag ttc (SEQ ID No: <u>2431895</u>)
5	tgg acc gcT gcg gac ac (SEQ ID No: <u>2441896</u>)
6	ggg ctg ccA gag ccc c (SEQ ID No: <u>2451897</u>)
7	gga gct gtg Atg gct gtt (SEQ ID No: <u>2461898</u>)
8	g agg atg tCt ggc tgc g (SEQ ID No: <u>2471899</u>)
9	g gcc cgt gTg gcg gag (SEQ ID No: <u>2481900</u>)
10	ctc ctc cgc Agg tat gac (SEQ ID No: <u>2491901</u>)
11	g gcg gcc Tgt gag gcg (SEQ ID No: <u>2501902</u>)
12	cg gag cag Tgg aga gcc (SEQ ID No: <u>2511903</u>)
13	g cgg aaa cTA cgc ggc ta (SEQ ID No: <u>2521904</u>)
14	ttc tat cct Acg gag atc a (SEQ ID No: <u>2531905</u>)
15	gcg gac acA gcg gct c (SEQ ID No: <u>2541906</u>)
16	c cgg ccc Agc cgc gg (SEQ ID No: <u>2551907</u>)
17	gcg gac acG gcg gct c (SEQ ID No: <u>2561908</u>)
18	a tgg gag ccA tct tcc ca (SEQ ID No: <u>2571909</u>)
19	acc ctc cag Agg atg tat g (SEQ ID No: <u>2581910</u>)
20	t gac cag tCc gcc tat g (SEQ ID No: <u>2591911</u>)
21	g gag ggc gAg tgc gtg (SEQ ID No: <u>2601912</u>)
22	cc atg agg tGt ttc tac ac (SEQ ID No: <u>2611913</u>)
23	t gac cag tTA gcc tac gac (SEQ ID No: <u>2621914</u>)
24	t tag gac acT gag ctt gtg (SEQ ID No: <u>2631915</u>)
25	gc gag gcc Agg tct cac (SEQ ID No: <u>2641916</u>)
26	tct cac atc Atc cag agg a (SEQ ID No: <u>2651917</u>)
27	ca gct gtg Gtg gtg cct (SEQ ID No: <u>2661918</u>)
28	acg gcg gcC cag atc ac (SEQ ID No: <u>2671919</u>)
29	gac gtg ggA ccc gac g (SEQ ID No: <u>2681920</u>)
30	g agg atg taC ggc tgc ga (SEQ ID No: <u>2691921</u>)

Table 10-2

Probe No.	Base Sequence
31	c ctg aag aaT ggg aag gag (SEQ ID No: 270 <u>1922</u>)
32	c ctc cag agC atg tac gg (SEQ ID No: 271 <u>1923</u>)
33	gc ggg tat gTc cag tac g (SEQ ID No: 272 <u>1924</u>)
34	c cga gtg aAc ctg cgg a (SEQ ID No: 273 <u>1925</u>)
35	ctg cgg aaA ctg cgc gg (SEQ ID No: 274 <u>1926</u>)
36	c tgc gac Gtg ggg ccc (SEQ ID No: 275 <u>1927</u>)
37	g gag ggc cTg tgc gtg (SEQ ID No: 276 <u>1928</u>)
38	g aca cag aaC tac aag cgc (SEQ ID No: 277 <u>1929</u>)
39	cac ttc atc Gca gtg ggc (SEQ ID No: 278 <u>1930</u>)
40	gcc cgt gCg gcg gag (SEQ ID No: 279 <u>1931</u>)
41	g agc gag gAc ggg tct c (SEQ ID No: 280 <u>1932</u>)
42	g gag cag cTg aga gcc t (SEQ ID No: 281 <u>1933</u>)
43	cta gga gct Atg gtg gct (SEQ ID No: 282 <u>1934</u>)
44	g gac gac acA cag ttc gt (SEQ ID No: 283 <u>1935</u>)
45	ga gag ccc cAc ttc atc g (SEQ ID No: 284 <u>1936</u>)
46	g tgc cat gtT cag cac ga (SEQ ID No: 285 <u>1937</u>)
47	ccg cgg gAg ccg tgg (SEQ ID No: 286 <u>1938</u>)
48	tg ggc tac Ctg gac gac (SEQ ID No: 287 <u>1939</u>)
49	ctg ggg ccG gac ggg (SEQ ID No: 288 <u>1940</u>)
50	c gtg tcc Tgg ccc ggc (SEQ ID No: 289 <u>1941</u>)
51	ag gca cag Gct gac cga (SEQ ID No: 290 <u>1942</u>)
52	c gcg gac aAg gcg gct (SEQ ID No: 291 <u>1943</u>)
53	tg aga tgg gGg cca tct t (SEQ ID No: 292 <u>1944</u>)
54	g gag tgg ctG cgc aga ta (SEQ ID No: 293 <u>1945</u>)
55	ac cat gag gTc acc ctg a (SEQ ID No: 294 <u>1946</u>)
56	aac ggg aag Aag acg ctg (SEQ ID No: 295 <u>1947</u>)
57	at aac cag tTc gcc tac ga (SEQ ID No: 296 <u>1948</u>)
58	cgg gcg cGg tgg gtg (SEQ ID No: 297 <u>1949</u>)
59	ggg gag ccC cgg gcg (SEQ ID No: 298 <u>1950</u>)
60	tac acc gcT gtg tcc cg (SEQ ID No: 299 <u>1951</u>)

Table 10-3

Probe No.	Base Sequence
61	gcg agt ccA aga ggg ga (SEQ ID No: 300 <u>1952</u>)
62	gg gtg gag Aag gag ggg (SEQ ID No: 301 <u>1953</u>)
63	ag agg atg tAt ggc tgc g (SEQ ID No: 302 <u>1954</u>)
64	g cgc aag tTg gag gcg g (SEQ ID No: 303 <u>1955</u>)
65	cag cgc gcA gaa ccc c (SEQ ID No: 304 <u>1956</u>)
66	g gct gcg tGc agc aac a (SEQ ID No: 305 <u>1957</u>)
67	tcc cag ccT acc atc cc (SEQ ID No: 306 <u>1958</u>)
68	ctg gag ggA ctg tgc gt (SEQ ID No: 307 <u>1959</u>)
69	g gag cag gaC aga gcc ta (SEQ ID No: 308 <u>1960</u>)
70	c ggc tac taT aac tag agc (SEQ ID No: 309 <u>1961</u>)
71	c ctc cag aaT atg tat ggc (SEQ ID No: 310 <u>1962</u>)
72	tc acc gct aAg atg tgt ag (SEQ ID No: 311 <u>1963</u>)
73	ag agg atg tTt ggc tgc g (SEQ ID No: 312 <u>1964</u>)
74	at gac cag tTc gcc tac g (SEQ ID No: 313 <u>1965</u>)
75	ggg ctg caA gag ccc c (SEQ ID No: 314 <u>1966</u>)
76	gc tct cag gTt gcg tgc a (SEQ ID No: 315 <u>1967</u>)
77	g gcc cgt Acg gcg gag (SEQ ID No: 316 <u>1968</u>)
78	ctg gag aac Agg aag aag a (SEQ ID No: 317 <u>1969</u>)
79	g gag ggc Gcg tgc gtg (SEQ ID No: 318 <u>1970</u>)
80	c ctc cag agC atg tat gg (SEQ ID No: 319 <u>1971</u>)
81	gag aac ggg Gag aag acg (SEQ ID No: 320 <u>1972</u>)
82	tcc tgg acT gcc gcg g (SEQ ID No: 321 <u>1973</u>)
83	tgg acc gcG gcg gac a (SEQ ID No: 322 <u>1974</u>)
84	gc ttc atc Gca gtg ggc (SEQ ID No: 323 <u>1975</u>)
85	ag tgg atg tAt ggc tgc g (SEQ ID No: 324 <u>1976</u>)
86	cc tac gac gTc aag gat ta (SEQ ID No: 325 <u>1977</u>)
87	c cga gtg Ggc ctg cgg (SEQ ID No: 326 <u>1978</u>)
88	gg tat ttc tCc aca tcc gt (SEQ ID No: 327 <u>1979</u>)
89	ag tgg atg tTt ggc tgc g (SEQ ID No: 328 <u>1980</u>)
90	g aac gag gaT ctg cgc tc (SEQ ID No: 329 <u>1981</u>)

Table 10-4

Probe No.	Base Sequence
91	c cgc ggg Cat gac cag (SEQ ID No: 330 <u>1982</u>)
92	ccc cga acT ctc ctc ct (SEQ ID No: 331 <u>1983</u>)
93	c cgc ggg Cat gac cag (SEQ ID No: 332 <u>1984</u>)
94	g gag cag cAg aga gcc t (SEQ ID No: 333 <u>1985</u>)
95	g gct gtt gtT atg tgt agg (SEQ ID No: 334 <u>1986</u>)
96	t gtg gtc gcT gct gtg at (SEQ ID No: 335 <u>1987</u>)
97	g gag ccc tGc acc ctg (SEQ ID No: 336 <u>1988</u>)
98	g acc tgg Acc ggc tcc (SEQ ID No: 337 <u>1989</u>)
99	ctg aga tgg Aag ccg tct (SEQ ID No: 338 <u>1990</u>)
100	ct gtc ctg gTt gtc cta g (SEQ ID No: 339 <u>1991</u>)

Table 11-1

Allele Number	Probe Number for Detection					
Cw*0102	0	1	2	3		
Cw*0103	4					
Cw*0104	5	6	7			
Cw*0105	8					
Cw*0106	9					
Cw*0107	10					
Cw*0108	11					
Cw*0109	12					
Cw*020201	13					
Cw*020202	14					
Cw*020203	15	12				
Cw*020204	16	17	18			
Cw*020205	16	19	20	17	12	21
Cw*0203	9	21				
Cw*0204	22					
Cw*0205	16	20	17	12	21	
Cw*0206	23	21				
Cw*030201	24	18				
Cw*030202	20	24				
Cw*030301	25	26	27			
Cw*030302	28					
Cw*030303	29					
Cw*030401	30	24				
Cw*030402	30	31	32			
Cw*0305	33	32				
Cw*0306	34					
Cw*0307	35	36	30	37	38	32
Cw*0308	39	30	24			
Cw*0309	40	30	38	32		
Cw*0310	41	30	37	38	32	
Cw*0311	25	26				

Table 11-2

Allele Number		Probe Number for Detection			
Cw*0312	25	42			
Cw*0313	25	27			
Cw*0314	43	32			
Cw*0315	44	20	38	32	
Cw*0316	37	20	17	45	
Cw*040101	46				
Cw*040102	47				
Cw*0403	48	49			
Cw*0404	50	45			
Cw*0405	51				
Cw*0406	48	52	45		
Cw*0407	53	54			
Cw*0408	50	38			
Cw*0410	50				
Cw*0501	36	55	56		
Cw*0502	57				
Cw*0503	58				
Cw*0504	20	55	59		
Cw*0505	37	60	55	59	
Cw*0506	61				
Cw*0602	62	12	7		
Cw*0603	63	62	20	12	
Cw*0604	62	45			
Cw*0605	64	65	20	17	
Cw*0606	62	7			
Cw*0607	66				
Cw*0608	44	20	17	12	21
Cw*0609	62	60	12		
Cw*070101	67	68	69	70	
Cw*070102	71				

Table 11-3

Allele Number		Probe Number for Detection				
Cw*070201	8	68	70			
Cw*0703	72					
Cw*070401	73	70				
Cw*070402	74					
Cw*0705	75					
Cw*0706	76					
Cw*0707	36	67	20	68	69	
Cw*0708	77	20	68	69		
Cw*0709	36	44	67	20	68	69
Cw*0710	78	79	20	68	69	
Cw*0711	73	80				
Cw*0712	73					
Cw*0713	8	81	68	69		
Cw*0714	82					
Cw*0715	8	21	69			
Cw*0716	39	67	20	68	69	
Cw*0717	8	83				
Cw*0718	84					
Cw*080101	85	56				
Cw*080102	86	60	87			
Cw*0802	55	56				
Cw*0803	88	7				
Cw*0804	55	45	59			
Cw*0805	54	60	55	59		
Cw*0806	89	88				
Cw*0807	55	68	59			
Cw*0808	33	59				
Cw*0809	90					
Cw*120201	86	5	7			
Cw*120202	86	5	6	7		
Cw*120203	67	5				
Cw*120301	54	91	7			

Table 11-4

Allele Number		Probe Number for Detection					
Cw*120302	92	12					
Cw*120401	93	54	36	94	20	17	12
Cw*120402	54	36	91	7			
Cw*1205	36	91	7				
Cw*1206	95						
Cw*1207	96						
Cw*1208	39	86	5	6	7		
Cw*140201	97	20	27				
Cw*140202	97	98	20				
Cw*1403	97	64	20	27			
Cw*1404	97	99	98	20	100		
Cw*1405	97	94	20	100			
Cw*150201	23	7					
Cw*150202	48	39	36	101	23	45	
Cw*1503	54	23	7				
Cw*1504	20	45	7				
Cw*150501	102						
Cw*150502	101	103	7				
Cw*1506	101	7					
Cw*1507	48	39	101	23	45		
Cw*1508	48	39	36	30	101	23	
Cw*1509	101	104	45				
Cw*1510	39	36	101	23	45		
Cw*1511	16	48	36	101	23	45	
Cw*1601	105	106					
Cw*1602	36	105	106				
Cw*160401	107	106					
Cw*1701	108						
Cw*1702	109						
Cw*1703	110						
Cw*1801	111	112					
Cw*1802	62	100	111				

Table 12-1

Allele Number	Probe Number for Detection					
Cw*0102	0	1	2	3		
Cw*0103	4					
Cw*0104	5	6	7			
Cw*0105	8					
Cw*0106	9					
Cw*0107	10					
Cw*0108	11					
Cw*0109	12					
Cw*020201	13					
Cw*020202	14					
Cw*020203	15	12				
Cw*020204	16	17	18			
Cw*020205	16	19	20	17	12	21
Cw*0203	9	21				
Cw*0204	22					
Cw*0205	16	20	17	12	21	
Cw*0206	23	21				
Cw*030201	24	18				
Cw*030202	20	24				
Cw*030301	25	26	27			
Cw*030302	28					
Cw*030303	29					
Cw*030401	26	24				
Cw*030402	26	30	31			
Cw*0305	32	31				
Cw*0306	33					
Cw*0307	34	35	26	36	37	31
Cw*0308	38	26	24			
Cw*0309	39	26	37	31		
Cw*0310	35	26	36	37	31	
Cw*0311	25	26				

Table 12-2

Allele Number	Probe Number for Detection				
Cw*0312	25	23			
Cw*0313	25	27			
Cw*0314	40	31			
Cw*0315	41	20	37	31	
Cw*0316	36	20	17	42	
Cw*040101	43				
Cw*040102	44				
Cw*0403	45	46			
Cw*0404	47	42			
Cw*0405	48				
Cw*0406	45	49	42		
Cw*0407	50	51			
Cw*0408	47	37			
Cw*0410	47				
Cw*0501	35	52	53		
Cw*0502	54				
Cw*0503	55				
Cw*0504	20	52	56		
Cw*0505	36	57	52	56	
Cw*0506	58				
Cw*0602	59	12	7		
Cw*0603	60	59	20	12	
Cw*0604	59	42			
Cw*0605	61	59	20	17	
Cw*0606	59	7			
Cw*0607	62				
Cw*0608	41	20	17	12	21
Cw*0609	59	57	12		
Cw*070101	63	64	65	66	
Cw*070102	67				
Cw*070201	8	64	66		

Table 12-3

Allele Number		Probe Number for Detection			
Cw*0703	68				
Cw*070401	69	66			
Cw*070402	70				
Cw*0705	71				
Cw*0706	72				
Cw*0707	38	35	40	42	
Cw*0708	73	40	42		
Cw*0709	38	35	41	40	42
Cw*0710	26	8	20	64	42
Cw*0711	69	66			
Cw*0712	69				
Cw*0713	8	74	64	42	
Cw*0714	30	64	40	42	
Cw*0715	8	21			
Cw*0716	38	40	42		
Cw*0717	8	75			
Cw*0718	76				
Cw*080101	42	53			
Cw*080102	30	57	77		
Cw*0802	52	53			
Cw*0803	78	7			
Cw*0804	52	42	56		
Cw*0805	51	57	52	56	
Cw*0806	79	78			
Cw*0807	52	64	56		
Cw*0808	80	56			
Cw*0809	81				
Cw*120201	30	5	7		
Cw*120202	30	5	6	7	
Cw*120203	63	5			
Cw*120301	51	82	7		

Table 12-4

Allele Number	Probe Number for Detection						
Cw*120302	83	12					
Cw*120401	84	51	35	85	20	17	12
Cw*120402	51	35	82	7			
Cw*1205	35	82	7				
Cw*1206	86						
Cw*1207	87						
Cw*1208	38	30	5	6	7		
Cw*140201	88	20	27				
Cw*140202	88	89	20				
Cw*1403	88	61	20	27			
Cw*1404	88	34	89	20	90		
Cw*1405	88	85	20	90			
Cw*150201	23	7					
Cw*150202	45	38	35	91	23	42	
Cw*1503	51	23	7				
Cw*1504	20	42	7				
Cw*150501	92						
Cw*150502	91	74	7				
Cw*1506	91	7					
Cw*1507	45	38	91	23	42		
Cw*1508	45	38	35	26	91	23	
Cw*1509	91	20	42				
Cw*1510	38	35	91	23	42		
Cw*1511	16	45	35	91	23	42	
Cw*1601	94	95					
Cw*1602	35	94	95				
Cw*160401	12	95					
Cw*1701	96						
Cw*1702	97						
Cw*1703	98						
Cw*1801	99	100					
Cw*1802	59	90	99				

(Example 7)

Probes for identification of HLA-DP allele

Extraction of DNA from 1 ml of human blood was performed using GFX Genomic Blood DNA Purification
 5 Kit from Amersham Biosciences in the same manner as in Example 1.

Next, quantitative PCR was carried out in the same manner as in Example 1 except that probes in the probe list 1 in Tables 13-1 to 13-3 or 14-1 to 14-3
 10 were used and 3 μ l of the mixed primers contains 1 μ l of respective solutions of the following primers (10 pmol/ μ l):

AAACACGGTCACCTCAGGGGGAT (SEQ ID NO: 2452242)
 GGCCTGAGTGTGGTTGGAACG (SEQ ID NO: 2462243)
 15 CCAGCTCGTAGTTGTGTCTGCA (SEQ ID NO: 2472244)

After PCR amplification, referring to Amp Plot and Dissociation curves on a display of 5700 software, and to the list in Table 15-1 for the probes in Table 13-1, or to the list in Tables 15-2 to 15-5 for the
 20 probes in Tables 13-2 to 13-3, it was identified as DPA1*010301 and DPB1*0901.

(Example 8)

Extraction of DNA from 1 ml of human blood was performed in the same way as in Example 1. PCR of
 25 human HLA-DP was then performed in the same manner as in Example 2 except that 6 μ l of the mixed primer consisting of 1 μ l each of the solutions containing

the following sequences at 10 pmol/ μ l respectively
and 9 μ l of ultra pure water.

AAACACGGTCACCTCAGGGGGAT (SEQ ID NO: ~~245~~2242)

GGCCTGAGTGTGGTTGGAACG (SEQ ID NO: ~~246~~2243)

5 CCAGCTCGTAGTTGTGTCTGCA (SEQ ID NO: ~~247~~2244)

CCATGTGTCAACTTATGCC (SEQ ID NO: ~~248~~2245)

AGAATTACCTTTTCCAG (SEQ ID NO: ~~250~~2247)

AGAATTACGTTTTTCCAG (SEQ ID NO: ~~251~~2248)

At the same time, a DNA microarray was prepared
10 to identify the allele in the specimen described
above in the same manner as in Example 2, except that
probes in Tables 14-1 and 14-2 were used to form the
probe spots respectively.

Then, hybridization was performed using the
15 above specimen and the prepared DNA microarray in the
same manner as in Example 2. Fluorometry measurement
was conducted with GenePix4000B (Axon). Referring to
the list in Table 16-1 when the probes in Table 14-1
were used, or to the list in Tables 16-2 to 16-5 when
20 the probes in Table 14-2 were used, the sample was
identified as DPA1*010301 and DPB1*0901.

Allele list

DPA1*010301 :

25 ccatgtgtcaacttatgccgcgtttgtacagacgcatagaccaacaggGgagtttatgtttgaatttgatgaAgat
gagatgttctatgtggatctggacaagaaggagaccgtctggcatctggaggagtttggccAagccttttcctttg
aggctcagggcggtggctaacattgctatatattgaacaacaacttgaataccttgatccagcggtccaaccacac

tcaggccaccaac (SEQ ID NO: ~~1~~1998) ;

DPA1*010302 :

gcgtttgtacagacgcatagaccaacaggAgagtttatgtttgaatttgatgaagatgagatgttctatgtggatc
tggacaagaaggagaccgtctggcatctggaggagtttgccaagccttttcctttgaggctcaggcgggctggc

5 taacattgctatattgaacaacaacttgaataccttgatccagcgttccaaccacactcaggccaccaac (SEQ
ID NO: ~~2~~1999) ;

DPA1*0104 :

gccgcgtttgtacagacgcatagaccaacaggggagtttatgtttgaatttgatgaGgatgagatgttctatgtgg
atctggacaagaaggagaccgtctggcatctggaggagtttgccaagccttttcctttgaggctcaggcgggct

10 ggctaacattgctatattgaacaacaacttgaataccttgatccagcgttccaaccacactcaggccaccaac (SE
Q ID NO: ~~3~~2000) ;

DPA1*0105 :

gccgcgtttgtacagacgcatagaccaacaggggagtttatgtttgaatttgatgaagatgagatgttctatgtgg
atctggacaagaaggagaccgtctggcatctggaggagtttgccaagccttttcctttgaggctcaggcgggct

15 ggctaacattgctatattgaacaacaacttgaataccttgatccagcgttccaaccacactcaggccgcaaT (SE
Q ID NO: ~~4~~2001) ;

DPA1*0106 :

ccatgtgtcaacttatgccgcgtttgtacagacgcatagaccaacaggggagtttatgtttgaatttgatgaagat
gagcagttctatgtggatctggataaAaaggagaccgtctggcatctggaggagtttgccaagccttttcctttg

20 aggctcaggcgggctggctaacattgctatattgaacaacaacttgaataccttgatccagcgttccaaccacac
tcaggccaccaac (SEQ ID NO: ~~5~~2002) ;

DPA1*0107 :

catgtgtcaacttatgccgcgtttgtacagacgcatagaccaacaggggagtttatgtttgaatttgatgaagatg
agatgttctatgtggatctggacaagaaggagaccgtctggcatctggaggagtttgccaaAccttttcctttga

25 ggctcaggcgggctggctaacattgctatattgaacaacaacttgaataccttgatccagcgttccaaccacact
caggccaccaac (SEQ ID NO: ~~6~~2003) ;

DPA1*0108 :

ccatgtgtcaacttatgccgcgtttgtacagacgcatagaccaacaggggagtttatgtttgaatttgatgaCgat
gagatgttctatgtggatctggacaagaaggagaccgtctggcatctggaggagtttggccGagccttttcctttg
aggctcagggcgggctggctaacattgctatatattgaacaacaacttgaataccttgatccagcgttccaaccacac
tcaggccaccaac (SEQ ID NO: ~~7~~2004) ;

5 DPA1*020101 :

ccatgtgtcaacttatgccgcgtttgtacagacCcatagaccaacaggggagtttatgtttgaatttgatgaagat
gagcagttctatgtggatctggataaAaaggagaccgtctggcatctggaggagtttggccgagccttttcctttg
aggctcagggcgggctggctaacattgctatatattgaacaacaacttgaataccttgatccagcgttccaaccacac
tcaggccgccaat (SEQ ID NO: ~~8~~2005) ;

10 DPA1*020102 :

ccatgtgtcaacttatgccgcgtttgtacagacgcatagaccaacaggggagtttatgtttgaatttgatgaagat
gagcagttctatgtggatctggataaAaaggagaccgtctggcatctggaggagtttggccgagccttttcctttg
aggctcagggcgggctggctaacattgctatatattgaacaacaacttgaataccttgatccagcgttccaaccacac
tcaggccgccaat (SEQ ID NO: ~~9~~2006) ;

15 DPA1*020103 :

ccatgtgtcaacttatgccgcgtttgtacagacgcatagaccaacaggggagtttatgtttgaatttgatgaagat
gagcAgttctatgtggatctggacaagaaggagaccgtctggcatctggaggagtttggccgagccttttcctttg
aggctcagggcgggctggctaacattgctatatattgaacaacaacttgaataccttgatccagcgttccaaccacac
tcaggccgccaat (SEQ ID NO: ~~10~~2007) ;

20 DPA1*020104 :

gcgtttgtacaacccatagaccaacaggggagtttatgtttgaatttgatgaagatgagcagttctatgtggatc
tggataaAaaggagaccgtctggcatctggaggagtttggccgagccttttcctttgaggctcagggcgggctggc
taacattgctatatattgaacaacaacttgaataccttgatccagcgttccaaccacactcaggccgccaat (SEQ
ID NO: ~~11~~2008) ;

25 DPA1*020105 :

ccatgtgtcaacttatgccgcgtttgtacagacgcatagaccaacaggAgagtttatgtttgaatttgatgaagat
gagcAgttctatgtggatctggacaagaaggagaccgtctggcatctggaggagtttggccgagccttttcctttg

aggctcagggcgggctggctaacattgctatatattgaacaacaacttgaataccttgatccagcgttccaaccacac
tcaggccgccaT (SEQ ID NO: ~~1~~2009) ;

DPA1*020106 :

ccatgtgtcaacttatgccgcgtttgtacagacCcatagaccaacaggggagtttatgtttgaatttgatgaagat
5 gagcagttctatgtggatctggaTaagaaggagaccgtctggcatctggaggagtttggccgagccttttcctttg
aggctcagggcgggctggctaacattgctatatattgaacaacaacttgaataccttgatccagcgttccaaccacac
tcaggccgccaT (SEQ ID NO: ~~1~~32010) ;

DPA1*020201 :

aacttatgccatgtttgtacagacccatagaccaacaggAgagtttatgtttgaatttgatgaagatgagcagttc
10 tatgtggatctggaTaagaaggagaccgtctggcatctggaggagtttggccgagccttttcctttgaggctcagg
gcgggctggctaacattgctatatattgaacaacaacttgaataccttgatccagcgttccaaccacactcaggccgc
caaT (SEQ ID NO: ~~1~~42011) ;

DPA1*020202 :

ccatgtgtcaacttatgccatgtttgtacagacCcatagaccaacaggAgagtttatgtttgaatttgatgaagat
15 gagcAgttctatgtggatctggacaagaaggagaccgtctggcatctggaggagtttggccgagccttttcctttg
aggctcagggcgggctggctaacattgctatatattgaacaacaacttgaataccttgatccagcgttccaaccacac
tcaggccgccaT (SEQ ID NO: ~~1~~52012) ;

DPA1*020203 :

atgtgtcaacttatgccatgtttgtacagacccatagaccaacaggggagtttatgtttgaatttgatgaagatga
20 gcagttctatgtggatctggacaagaaggagaccgtctggcatctggaggagtttggccgagccttttcctttgag
gctcagggcgggctggctaacattgctatatattgaacaacaacttgaataccttgatccagcgttccaaccacactc
aggccgccaT (SEQ ID NO: ~~1~~62013) ;

DPA1*0203 :

ccatgtgtcaacttatgccgcgtttgtacagacCcatagaccaacaggggagtttatgtttgaatttgatgaagat
25 gagatgttctatgtggatctggacaagaaggagaccgtctggcatctggaggagtttggccgagccttttcctttg
aggctcagggcgggctggctaacattgctatatattgaacaacaacttgaataccttgatccagcgttccaaccacac
tcaggccgccaT (SEQ ID NO: ~~1~~72014) ;

DPA1*0301 :

gccatgtttgtacagacccatagaccaacagggagtttatgtttgaatttgatgaagatgagatgttctatgtgg
atctggacaagaaggagaccgtctggcatctggaggagtttggccaagccttttcctttgaggctcaggcgggct
ggctaacattgctatatCgaacaacaacttgaataccttgatccagcgttccaaccacactcaggccaccaac (SE

5 Q ID NO: ~~1-8~~2015) ;

DPA1*0302 :

ccatgtgtcaacttatgccatgtttgtacagacccatagaccaacagggagtttatgtttgaatttgatgaagat
gagatgttctatgtggatctggacaagaaggagaccgtctggcatctggaggagtttggccaagccttttcctttg
aggctcaggcgggctggctaacattgctatatTgaacaacaacttgaataccttgatccagcgttccaaccacac
tcaggccaccaac (SEQ ID NO: ~~1-9~~2016) ;

10

DPA1*0401 :

gccgcgtttgtacagacgcatagaacaacaggagagtttatgtttgagtttgatgatgatgagatgttctatgtgg
atctggacaagaaggagaccgtctggcatctggaggagtttggccgagccttttcctttgaggctcaggcgggct
ggctaacattgctatatTgaacaacaacttgaatatcgcTatccagcgttccaaccacactcaggccgccaat (SE

15 Q ID NO: ~~2-0~~2017) ;

DPB1*010101 :

agaattacgtgtaccaggacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
caaccgggaggagtacgcgcgttcgacagcgacgtgggggagttccggcggtgacggagctggggcgccctgct
gcggagtactggaacagccagaaggacatcctggaggagaagcgggcagtgccggacaggGtAtgcagacacaact
acgagctggacgaggccgtgaccctgcagcgccgagtcc (SEQ ID NO: ~~2-1~~2018) ;

20

DPB1*010102 :

aattacgtgtaccaggacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatctaca
accgggaggagtacgcgcgttcgacagcgacgtgggAgagttccggcggtgacggagctggggcgccctgctgc
ggagtactggaacagccagaaggacatcctggaggagaagcgggcagtgccggacagggtatgcagacacaactac
gagctggacgaggccgtgaccctgcagcgccga (SEQ ID NO: ~~2-2~~2019) ;

25

DPB1*020102 (SEQ ID NO: ~~2-3~~2020) :

agaattaccttttcaggacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta

caaccgggaggagttcgtgTgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgat
gAggagtactggaacagccagaaggacatcctggaggagGagcgggcagtgccggacaggatGtgacagacaaact
acgagctggGcggggcccatgaccctgcagcgccgagtcc (SEQ ID NO: ~~2-4~~2021) ;

DPB1*020103 :

5 agaattaccttttccagggacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
caaccgggaggagttcgtgTgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgaG
gaggagtactggaacagccagaaggacatcctggaggaggagcgggcagtgccggacaggatgtgcagacacaaact
acgagctgggcggggcccatgaccctgcagcgccgag (SEQ ID NO: ~~2-5~~2022) ;

DPB1*020104 :

10 agaattaccttttccagggacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
caaccgggaggagttcgtgTgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgat
gaggagtactggaacagccagaaggacatcctggaggaggagcgggcagTGccggacaggatgtgcagacacaaact
acgagctgggcggggcccatgaccctgcagcgccga (SEQ ID NO: ~~2-6~~2023) ;

DPB1*020105 :

15 agaattaccttttccagggacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
caaccgggaAgagttcgtgTgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgat
gaggagtactggaacagccagaaggacatcctggaggaggagcgggcagtgccggacaggatgtgcagacacaaact
acgagctgggcggggcccatgaccctgcagcgccgag (SEQ ID NO: ~~2-7~~2024) ;

DPB1*020106 :

20 agaattaccttttccagggacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
caaccgggaggagttTgtgTgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgat
gaggagtactggaacagccagaaggacatcctggaggaggagcgggcagtgccggacaggatgtgcagacacaaact
acgagctgggcggggcccatgaccctgcagcgccgag (SEQ ID NO: ~~2-8~~2025) ;

DPB1*0202 :

25 agaattaccttttccagggacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
caaccgggaggagGtcgtgTgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgaG
gcggagtactggaacagccagaaggacatcctggaggagGagcgggcagtgccggacaggatgtgcagacacaaact

acgagctgggCGGGCCcAtgaccctgcagCGCCgag (SEQ ID NO: ~~2-9-2026~~) ;

DPB1*030101 :

agaattacgtgtaccagtTAcggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
 caaccgggaggagttcGTgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggCGGCctgat
 5 gaggaCtactggaacagccagaaggacCtctggaggagaagCGggcagtgccggacagggtatgcagacacaact
 acgagctggacgaggccgtgaccctgcagCGCCgagtcc (SEQ ID NO: ~~3-0-2027~~) ;

DPB1*030102 :

agaattacgtgtaccagttacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
 caaccgggaggagttcgtGcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggCGGCctgat
 10 gaggactactggaacagccagaaggacCtctggaggagaagCGggcagtgccggacagggtatgcagacacaact
 acgagctggacgaggccgtgaccctAcagCGCCgag (SEQ ID NO: ~~3-1-2028~~) ;

DPB1*0401 :

agaattaccttttccagggacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
 caaccgggaggagTcgcgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggCGGCctgct
 15 gcggagtactggaacagccagaaggacatCtctggaggagaagCGggcagtgccggacaggatGtgcagacacaact
 acgagctggGcgggcccatgaccctgcagCGCCgagtcc (SEQ ID NO: ~~3-2-2029~~) ;

DPB1*0402 :

agaattaccttttccagggacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
 caaccgggaggagttcGTgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggCGGCctgat
 20 gAggagtactggaacagccagaaggacatCtctggaggagaagCGggcagtgccggacaggatGtgcagacacaact
 acgagctggGcgggcccatgaccctgcagCGCCgagtcc (SEQ ID NO: ~~3-3-2030~~) ;

DPB1*0501 :

agaattaccttttccagggacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
 caaccgggaggagCtcGTgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggCGGCctgaG
 25 gcggagtactggaacagccagaaggacatCtctggaggagaagCGggcagtgccggacaggatGtgcagacacaact
 acgagctggacgaggccgtgaccctgcagCGCCgag (SEQ ID NO: ~~3-4-2031~~) ;

DPB1*0601 :

agaattacgtgtaccagttacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
 caaccgggaggagttcgtgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgat
 gaggaCtactggaacagccagaaggacCtctggaggagGagcgggcagtgccggacaggatGtgcagacacaact
 acgagctggacgaggccgtgaccctgcag (SEQ ID NO: ~~3-5~~2032) ;

5 DPB1*0801 :

ctttccagggacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatctacaaccggg
 aggagttcgTgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgatGaggagta
 ctggaacagccagaaggacatcctggaggagGagcgggcagtgccggacagggtatgcagacacaactacgagctg
 gacgaggccgtgaccctgcag (SEQ ID NO: ~~3-6~~2033) ;

10 DPB1*0901 :

agaattacgtgcaccagtTacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
 caaccgggaggagttcgtgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgat
 gaggaCtactggaacagccagaaggacatcctggaggagGagcgggcagtgccggacagggtatgcagacacaact
 acgagctggacgaggccgtgaccctgcagcgccgag (SEQ ID NO: ~~3-7~~2034) ;

15 DPB1*1001 :

agaattacgtgcaccagtTacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
 caaccgggaggagttcgTgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgat
 gAggagtactggaacagccagaaggacatcctggaggagGagcgggcagtgccggacagggtatgcagacacaact
 acgagctggacgaggccgtgaccctgcagcgccgag (SEQ ID NO: ~~3-8~~2035) ;

20 DPB1*110101 :

gtgtaccagttacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatctacaaccggC
 aggagtacgcgcgcttcgacagcgacgtgggagagttccgggcggtgacggagctggggcggcctgctgcggagta
 ctggaacagccagaaggacctcctggaggagaggcgggcagtgccggacaggatgtgcagacacaactacgagctg
 gacgaggccgtgaccctgcag (SEQ ID NO: ~~3-9~~2036) ;

25 DPB1*110102 :

agaattacgtgtaccagttacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
 caacAggcaggagtacgcgcgcttcgacagcgacgtgggagagttccgggcggtgacggagctggggcggcctgct

gcggagtactggaacagccagaaggacctcctggaggagaggcgggcagtgccggacaggatgtgcagacacaact
acgagctggacgaggccgtgaccctgcag (SEQ ID NO: ~~4-0~~2037) ;

DPB1*1301 :

agaattacgtgtaccagtTacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
5 caaccgggaggagtacgcgccttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgct
gcggagtactggaacagccagaaggacatcctggaggagGagcgggcagtgccggacaggAtatgcagacacaact
acgagctggacgaggccgtgaccctgcag (SEQ ID NO: ~~4-1~~2038) ;

DPB1*1401 :

agaattacgtgcaccagtTacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
10 caaccgggaggagtTcgTgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgat
gaggaGtactggaacagccagaaggacGtctcctggaggagaagcgggcagtgccggacagggtatgcagacacaact
acgagctggacgaggccgtgaccctgcag (SEQ ID NO: ~~4-2~~2039) ;

DPB1*1501 :

agaattacgtgtaccaggacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
15 caaccggGaggagtacgcgccttcgacagcgacgtgggagagttccgggcggtgacggagctggggcggcctgct
gcggagtactggaacagccagaaggacctcctggaggagaggcgggcagtgccggacaggatgtgcagacacaact
acgagctggtcggggccAtgaccctgcagcgccgag (SEQ ID NO: ~~4-3~~2040) ;

DPB1*1601 :

agaattacctttccaggacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
20 caaccgggaggagtTcgTgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgat
gAggagtactggaacagccagaaggacatcctggaggagGagcgggcagtgccggacaggatGtgcagacacaact
acgagctggacgaggccgtgaccctgcagcgccgag (SEQ ID NO: ~~4-4~~2041) ;

DPB1*1701 :

agaattacgtgcaccagtTacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
25 caaccgggaggagtTcgTgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgat
gaggaGtactggaacagccagaaggacatcctggaggagGagcgggcagtgccggacaggatGtgcagacacaact
acgagctggacgaggccgtgaccctgcagcgccgag (SEQ ID NO: ~~4-5~~2042) ;

DPB1*1801 :

gtgtaccaggacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatctacaaccggg
aggagtctgTgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgatgAggagta
ctggaacagccagaagacatcctggaggagaagcgggcagtgccggacaggatgtgcagacacaactacgagctg
5 gTcgggccatgaccctgcag (SEQ ID NO: ~~4-6~~2043) ;

DPB1*1901 :

agaattacctttccaggacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
caaccgggaggagttcgtgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgaG
gcggagtactggaacagccagaagacatcctggaggagGagcgggcagtgccggacaggAtatgcagacacaact
10 acgagctggacgaggccgtgaccctgcagcgccgag (SEQ ID NO: ~~4-7~~2044) ;

DPB1*200101 :

agaattacgtgtaccagttacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
caaccgggaggagttcgtgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgat
gaggaGtactggaacagccagaagacGtctcctggaggagaagcgggcagtgccggacaggatGtgacagacaaact
15 acgagctggacgaggccgtgaccctgcagcgccgag (SEQ ID NO: ~~4-8~~2045) ;

DPB1*200102 :

agaattacgtgtaccagttacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
caaccgggaggagttcgtgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgat
gaggactactggaacagccagaagacctcctggaggagaagcgggcagtgccggacaggatGtgacagacaaact
20 acgagctggacgaggccgtgaccctgcagcgTcga (SEQ ID NO: ~~4-9~~2046) ;

DPB1*2101 :

agaattacgtgtaccagtTacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
caaccgggaggagGtcgtgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgaG
gcggagtactggaacagccagaagacatcctggaggagGagcgggcagtgccggacaggatGtgacagacaaact
25 acgagctggacgaggccgtgaccctgcagcgccgag (SEQ ID NO: ~~5-0~~2047) ;

DPB1*2201 :

agaattacctttccaggacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta

caaccgggaggagGtcgtgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgaG
gcggagtactggaacagccagaaggacatcctggaggagGagcgggcagtgccggacaggatGtgacagacaaact
acgagctggacgaggccgtgaccctgcagcgccgag (SEQ ID NO: ~~5-1~~2048) ;

DPB1*2301 :

5 agaattaccttttcaggggacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
caaccgggaggagttcGTgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgct
gcggagtactggaacagccagaaggacatcctggaggagaagcgggcagtgccggacaggatGtgacagacaaact
acgagctggGcggggccatgaccctgcagcgccgag (SEQ ID NO: ~~5-2~~2049) ;

DPB1*2401 :

10 agaattaccttttcaggggacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
caaccgggaggagttcgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgaG
gcggagtactggaacagccagaaggacatcctggaggagaagcgggcagtgccggacaggatgtgcagacacaaact
acgagctgggcggggcccAtgaccctgcagcgccgag (SEQ ID NO: ~~5-3~~2050) ;

DPB1*2501 :

15 agaattacgtgtaccagtTaccggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
caaccgggaggagttcGTgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgat
gAggagtactggaacagccagaaggacGtcctggaggagaagcgggcagtgccggacagggtatgcagacacaaact
acgagctggacgaggccgtgaccctgcagcgccgag (SEQ ID NO: ~~5-4~~2051) ;

DPB1*260101 :

20 gtgtaccagttacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatctacaaccggg
aggagtacgcgcgcttcgacagcgacgtgggagagttccgggcggtgacggagctggggcggcctgctgcggagta
ctggaacagccagaaggacatcctggaggagaagcgggcagtgccggacagAgtatgcagacacaaactacgagctg
gacgaggccgtgaccctgcagcgccgag (SEQ ID NO: ~~5-5~~2052) ;

DPB1*260102 :

25 gtgtaccagttacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatctacaaccggg
aggagtacgcgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgctgcggagta
ctggaacagccagaaggacatcctggaggagaagcgggcagtgccggacagggtatgcagacacaaactacgagctg

gacgaggccgtgaccctgcagcgccga (SEQ ID NO: ~~5-6~~2053) ;

DPB1*2701 :

agaattacgtgtaccagtTacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
 caaccgggaggagtacgcgcgttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgct
 5 gcggtacttgaacagccagaaggacatcctggaggagaagcgggcagtgccggacaggatGtgacagacaaact
 acgagctggacgaggccgtgaccctgcagcgccgag (SEQ ID NO: ~~5-7~~2054) ;

DPB1*2801 :

agaattacctttccaggacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
 caaccgggaggagttcgcgcgttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgat
 10 gAggagtacttgaacagccagaaggacCtctggaggagaagcgggcagtgccggacaggatgtgcagacacaaact
 acgagctggTcgggcccatgaccctgcagcgccgag (SEQ ID NO: ~~5-8~~2055) ;

DPB1*2901 :

agaattacgtgtaccagttacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
 caaccgggaggagttcgtgcgcgttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgat
 15 gaggaCtacttgaacagccagaaggacCtctggaggagGagcgggcagtgccggacagggtatgcagacacaaact
 acgagctggacgaggccgtgaccctgcagcgccgag (SEQ ID NO: ~~5-9~~2056) ;

DPB1*3001 :

agaattacgtgcaccagtTacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
 caaccgggaggagttcgtgcgcgttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgaG
 20 gcggtacttgaacagccagaaggacatcctggaggagGagcgggcagtgccggacaggatGtgacagacacaaact
 acgagctggacgaggccgtgaccctgcag (SEQ ID NO: ~~6-0~~2057) ;

DPB1*3101 :

agaattacctttccaggacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
 caaccgggaggagttcgcgcgttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgct
 25 gcggtacttgaacagccagaaggacctcctggaggagaagcgggcaTtgccggacaggatgtgcagacacaaact
 acgagctggacgaggccgtgaccctgcagcgccgag (SEQ ID NO: ~~6-1~~2058) ;

DPB1*3201 :

agaattaccttttccaggacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
 caaccgggaggagttcgtgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgat
 gaggTgtactggaacagccagaaggacatcctggaggaggagcgggcagtgccggacaggatgtgcagacacaact
 acgagctgggcgggccatgaccctgcagcgccgag (SEQ ID NO: ~~6-2~~2059) ;

5 DPB1*3301 :

agaattaccttttccaggacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
 caaccgggaggagttcgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgct
 gcggagtactggaacagccagaaggacatcctggaggagGagcgggcagtgccggacaggatGtgacagacaaact
 acgagctggGcgggccatgaccctgcag (SEQ ID NO: ~~6-3~~2060) ;

10 DPB1*3401 :

agaattaccttttccaggacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
 caaccgggaggagctcgtgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgct
 gcggagtactggaacagccagaaggacatcctggaggagaagcgggcaTtgccggacaggatgtgcagacacaact
 acgagctggtcggggccAtgaccctgcag (SEQ ID NO: ~~6-4~~2061) ;

15 DPB1*3501 :

agaattacgtgcaccagtTacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
 caaccgggaggagttcGTgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgat
 gaggaGtactggaacagccagaaggacatcctggaggagaagcgggcagtgccggacagggtatgcagacacaact
 acgagctggacgaggccgtgaccctgcag (SEQ ID NO: ~~6-5~~2062) ;

20 DPB1*3601 :

agaattacgtgtaccagtTacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
 caaccgggaggagGtcGTgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgaG
 gcggagtactggaacagccagaaggacatcctggaggagaagcgggcagtgccggacaggatGtgacagacacaact
 acgagctggacgaggccgtgaccctgcagcgccgag (SEQ ID NO: ~~6-6~~2063) ;

25 DPB1*3701 :

gtgtaccagttacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatctacaaccggg
 aggagttcGTgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgatgAggagta

ctggaacagccagaaggacatcctggaggagGagcgggcagtgccggacagggtatgcagacacaactacgagctg
gacgaggccgtgaccctgcagcgccgag (SEQ ID NO:~~6-7~~2064) ;

DPB1*3801 :

cttttcaggggacggcaggaatgctacCcgtttaatgggacacagcgcttcctggagagatacatctacaaccggg
5 aggagctcgtgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcgccctgaggcggagta
ctggaacagccagaaggacatcctggaggagaagcgggcagtgccggacaggatgtgcagacacaactacgagctg
gacgaggccgtgaccctgcag (SEQ ID NO:~~6-8~~2065) ;

DPB1*3901 :

agaattaccttttcaggggacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
10 caaccgggaggagtacgcgcgttcgacagcgacgtgggggagttccgggcggtgacggagctggggcgccctgct
gcggagtactggaacagccagaaggacatcctggaggagaagcgggcagtgccggacaggatGtgacagacaaact
acgagctggGcggggcccatgaccctgcagcgccga (SEQ ID NO:~~6-9~~2066) ;

DPB1*4001 :

agaattaccttttcaggggacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
15 caaccgggaggagtacgcgcgttcgacagcgacgtgggggagttccgggcggtgacggagctggggcgccctgct
gcggagtactggaacagccagaaggacatcctggaggagaagcgggcagtgccggacaggatgtgcagacacaact
acgagctggTcggggcccatgaccctgcagcgccga (SEQ ID NO:~~7-0~~2067) ;

DPB1*4101 :

aattaccttttcaggggacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatctaca
20 accgggaggagttcgtgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcgccctgatga
ggagtactggaacagccagaaggacTtctggaggagGagcgggcagtgccggacaggatgtgcagacacaactac
gagctgggcggggcccatgaccctgcagcgccga (SEQ ID NO:~~7-1~~2068) ;

DPB1*4401 :

agaattacgtgtaccagttacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
25 caaccgggaggagGtcgtgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcgccctgat
gaggactactggaacagccagaaggacGtctggaggagGagcgggcagtgccggacagggtatgcagacacaact
acgagctggacgaggccgtgaccctgcagcgccgag (SEQ ID NO:~~7-2~~2069) ;

DPB1*4501 :

gtgcaccagttacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatctacaaccggg
aggagttcgTgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgatgAggagta
ctggaacagccagaaggacCtcctggaggagaagcgggcagtgccggacagggtatgcagacacaactacgagctg
5 gacgaggccgtgaccctgcag (SEQ ID NO:~~7-3~~2070) ;

DPB1*4601 :

agaattacctttccaggacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
caaccgggaggagttcgtgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgat
gaggaCtactggaacagccagaaggacatcctggaggagGagcgggcagtgccggacaggatgtgcagacacaact
10 acgagctgggcgggcccAtgaccctgcagcgccgag (SEQ ID NO:~~7-4~~2071) ;

DPB1*4701 :

agaattacctttccaggacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
caaccgggaggagttcgtgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgaG
gcggagtactggaacagccagaaggacatcctggaggagGagcgggcagtgccggacaggatgtgcagacacaact
15 acgagctgggcgggcccAtgaccctgcagcgccgag (SEQ ID NO:~~7-5~~2072) ;

DPB1*4801 :

aattacctttccaggacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatctaca
accgggaggagCtcgtgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgatgA
ggagtactggaacagccagaaggacatcctggaggaggagcgggcagtgccggacaggatgtgcagacacaactac
20 gagctggGcgggcccAtgaccctgcag (SEQ ID NO:~~7-6~~2073) ;

DPB1*4901 :

aattacctttccaggacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatctaca
accgggaggagtacgcgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgatgA
ggagtactggaacagccagaaggacatcctggaggagaagcgggcagtgccggacaggatGtgcagacacaactac
25 gagctggGcgggcccAtgaccctgcag (SEQ ID NO:~~7-7~~2074) ;

DPB1*5001 :

aattacgtgtaccaggacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatctaca

accgggaggagttcgTgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcgccctgatga
ggaCtacttggaacagccagaaggacCtcttgaggagaagcgggcagtgccggacagggtatgcagacacaactac
gagctggacgaggccgtgaccctgcag (SEQ ID NO: ~~7-8~~2075) ;

DPB1*5101 :

5 agaattaccttttccaggacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
caaccgggaggagtTgcgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcgccctgat
gAggagtactggaacagccagaaggacatcctggaggagaagcgggcagtgccggacaggatGtgacagacaact
acgagctggGcgggcccatgaccctgcagcgccgag (SEQ ID NO: ~~7-9~~2076) ;

DPB1*5201 :

10 agaattacgtgtaccagtTaccggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
caaccgggaggagttcgTgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcgccctgct
gcggagtactggaacagccagaaggacCtcttgaggagaagcgggcagtgccggacagggtatgcagacacaact
acgagctggacgaggccgtgaccctgcag (SEQ ID NO: ~~8-0~~2077) ;

DPB1*5301 :

15 agaattaccttttccaggacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
caaccgggaggagtacgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcgccctgat
gAggagtactggaacagccagaaggacatcctggaggagaagcgggcagtgccggacaggatgtgcagacacaact
acgagctggTcgggcccatgaccctgcag (SEQ ID NO: ~~8-1~~2078) ;

DPB1*5401 :

20 agaattacgtgcaccagtTaccggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
caaccgggaggagttcgtgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcgccctgaG
gcggagtactggaacagccagaaggacatcctggaggagGagcgggcagtgccggacagggtatgcagacacaact
acgagctggacgaggccgtgaccctgcag (SEQ ID NO: ~~8-2~~2079) ;

DPB1*5501 :

25 agaattacgtgcaccagtTaccggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
caaccgggaggagttcgTgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcgccctgct
gcggagtactggaacagccagaaggacatcctggaggagGagcgggcagtgccggacaggatGtgacagacacaact

acgagctggacgaggccgtgaccctgcag (SEQ ID NO: ~~8-3~~2080) ;

DPB1*5601 :

gtgtaccagttacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatctacaaccggg
aggagtTgcgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcgccctgctgcggagta
5 ctggaacagccagaaggacCtcctggaggagaagcgggcagtgccggacagggtatgcagacacaactacgagctg
gacgaggccgtgaccctgcag (SEQ ID NO: ~~8-4~~2081) ;

DPB1*5701 :

cttttcaggacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatctacaaccggg
aggagtTgcgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcgccctgatgaggaCta
10 ctggaacagccagaaggacCtcctggaggagaagcgggcagtgccggacagggtatgcagacacaactacgagctg
gacgaggccg (SEQ ID NO: ~~8-5~~2082) ;

DPB1*5801 :

aattacgtgcaccagttacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatctaca
accgggaggagCtcgtgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcgccctgctgc
15 ggagtactggaacagccagaaggacatcctggaggagGagcgggcagtgccggacaggatGtgacagacacaactac
gagctggacgaggccgtgaccctgcag (SEQ ID NO: ~~8-6~~2083) ;

DPB1*5901 :

agaattaccttttcaggacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
caaccgggaggagttcgtgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcgccctgat
20 gAggagtactggaacagccagaaggacCtcctggaggagaagcgggcagtgccggacaggatGtgacagacacaact
acgagctggGcgggcccatgaccctgcag (SEQ ID NO: ~~8-7~~2084) ;

DPB1*6001 :

agaattaccttttcaggacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
caaccgggaggagttcgtgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcgccctgat
25 gaggagtactggaacagccagaaggacaAcctggaggagaagcgggcagtgccggacaggatGtgacagacacaact
acgagctgggGcgggcccatgaccctgcag (SEQ ID NO: ~~8-8~~2085) ;

DPB1*6101N :

agaattacgtgtaccagttacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
 caaccgggaggagttcgtgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgat
 gaggactactggaacagccagaaggacctcctgTaggagaagcgggcagtgccggacagggtatgcagacacaact
 acgagctggacgaggccgtgaccctgcagcgc (SEQ ID NO: ~~8-9~~2086) ;

5 DPB1*6201 :

agaattacctttccagggacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
 caaccgggaggagGtcgTgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgct
 gcggagtactggaacagccagaaggacatcctggaggagaagcgggcagtgccggacaggatgtgcagacacaact
 acgagctggTcgggccatgaccctgcag (SEQ ID NO: ~~9-0~~2087) ;

10 DPB1*6301 :

aattacctttccagggacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatctaca
 accgggaggagGtcgtgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgctgc
 ggagtactggaacagccagaaggacatcctggaggagaagcgggcagtgccggacaggatGtcgagacacaactac
 gagctggacgaggccgtgaccctgcag (SEQ ID NO: ~~9-1~~2088) ;

15 DPB1*6401N :

aattaagtgtaccagttacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatctaca
 accgggaggagttcgtgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgatga
 ggaGtactggaacagccagaaggacGtcctggaggagGagcgggcagtgccggacaggatGtcgagacacaactac
 gagctggacgaggccgtgaccctgcag (SEQ ID NO: ~~9-2~~2089) ;

20 DPB1*6501 :

agaattacctttccagggacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
 caaccgggaggagtacgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgct
 gcggagtactggaacagccagaaggacatcctggaggagaagcgggcagtgccggacagggtatgcagacacaact
 acgagctggacgaggccgtgaccctgcagcgccgag (SEQ ID NO: ~~9-3~~2090) ;

25 DPB1*6601 :

agaattacgtgcaccagtTaccggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
 caaccgggaggagtTcgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgct

gcggagtactggaacagccagaaggacatcctggaggagaagcgggcagtgccggacaggatGtgacagacaaact
acgagctggGcggggcccatgaccctgcagcgccgag (SEQ ID NO: ~~9-4~~2091) ;

DPB1*6701 :

agaattacgtgcaccagtTacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
5 caaccgggaggagttcgTgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgct
gcggagtactggaacagccagaaggacCtctggaggagaagcgggcagtgccggacagggtatgcagacacaaact
acgagctggacgaggccgtgaccctgcagcgccgag (SEQ ID NO: ~~9-5~~2092) ;

DPB1*6801 :

agaattaccttttccagggacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
10 caaccgggaggagttcgTgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgat
gAggagtactggaacagccagaaggacatcctggaggagaagcgggcagtgccggacagggtatgcagacacaaact
acgagctggacgaggccgtgaccctgcagcgccga (SEQ ID NO: ~~9-6~~2093) ;

DPB1*6901 :

agaattacgtgtaccagttacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
15 caaccgggaggagttcgtgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgat
gaggaCtactggaacagccagaaggacctcctggaggagaGgcgggcagtgccggacagggtatgcagacacaaact
acgagctggacgaggccgtgacc (SEQ ID NO: ~~9-7~~2094) ;

DPB1*7001 :

aattacgtggaccagttacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatctaca
20 accgggaggagttcgTgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgatga
ggaCtactggaacagccagaaggacCtctggaggagaagcgggcagtgccggacagggtatgcagacacaaactac
gagctggacgaggccgtgaccctgcag (SEQ ID NO: ~~9-8~~2095) ;

DPB1*7101 :

aattaccttttccagggacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatctaca
25 accgggaggagttcgTgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgctgc
ggagtactggaacagccagaaggacatcctggaggagGagcgggcagtgccggacagggtatGtgacagacacaaactac
gagctggGcggggcccatgaccctgcag (SEQ ID NO: ~~9-9~~2096) ;

DPB1*7201 :

aattaccttttccagggacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatctaca
accgggaggagttcgcgcgttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgctgc
ggagtactggaacagccagaaggacGtcctggaggagaagcgggcagtgccggacaggatGtcagacacaactac
5 gagctggGcggggcccatgaccctgcag (SEQ ID NO: ~~1-0-0~~2097) ;

DPB1*7301 :

aattaccttttccagggacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatctaca
accgggaggagttcgtgcgcgttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgatgA
ggagtactggaacagccagaaggacGtcctggaggagaagcgggcagtgccggacagggtatgcagacacaactac
10 gagctggGcggggcccatgaccctgcag (SEQ ID NO: ~~1-0-1~~2098) ;

DPB1*7401 :

gtgtaccagttacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatctacaaccggG
aggagtacgcgcgttcgacagcgacgtgggagagttccgggcggtgacggagctggggcggcctgctgcggagta
ctggaacagccagaaggacctcctggaggagagcgggcagtgccggacaggatgtgcagacacaactacgagctg
15 gtcggggcccAtgaccctgcag (SEQ ID NO: ~~1-0-2~~2099) ;

DPB1*7501 :

cttttccagggacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatctacaaccggg
aggagttcgTgcgcgttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgatgAggagta
ctggaacagccagaaggacatcctggaggagaagcgggcagtgccggacagggtatgcagacacaactacgagctg
20 gGcggggcccatgaccctgcag (SEQ ID NO: ~~1-0-3~~2100) ;

DPB1*7601 :

agaattacgtgcaccagtTacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
caaccgggaggagttcgcgcgttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgat
gaggaGtactggaacagccagaaggacGtcctggaggagaagcgggcagtgccggacagggtatgcagacacaact
25 acgagctggacaggccgtgaccctgcag (SEQ ID NO: ~~1-0-4~~2101) ;

DPB1*7701 :

agaattaccttttccagggacTgcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta

caaccgggaggagttcgtgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgat
gaggagtactggaacagccagaaggacatcctggaggagaagcgggcagtgccggacaggatgtgcagacacaact
acgagctgggcgggccatgaccctgcagcgccgag (SEQ ID NO: ~~1-0-5~~2102) ;

DPB1*7801 :

5 agaattacgtgtaccagttacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
caaccgggaggagttcgtgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgat
gaggagtactggaacagccagaaggacatcctggaggagaagcgggcagtgTggacagggtatgcagacacaact
acgagctggacgaggccgtgaccctgcagcgccgag (SEQ ID NO: ~~1-0-6~~2103) ;

DPB1*7901 :

10 agaattacgtgtaccagtTacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
caaccgggaggagttcgtgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgat
gAggagtactggaacagccagaaggacatcctggaggagaagcgggcagtgccggacagggtatgcagacacaact
acgagctggacgaggccgtgaccctgcagcgccgag (SEQ ID NO: ~~1-0-7~~2104) ;

DPB1*8001 :

15 agaattaccttttccagggacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
caaccgggaggagttcgtgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgat
gaggaGtactggaacagccagaaggacatcctggaggagaagcgggcagtgccggacaggatgtgcagacacaact
acgagctgggcggggccAtgacc (SEQ ID NO: ~~1-0-8~~2105) ;

DPB1*8101 :

20 agaattaccttttccagggacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
caaccgggaggagttcgtgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgat
gAggagtactggaacagccagaaggacatcctggaggagGagcgggcagtgccggacaggatGtgcagacacaact
acgagctggGcggggccatgaccctgcagcgccgag (SEQ ID NO: ~~1-0-9~~2106) ;

DPB1*8201 :

25 agaattaccttttccagggacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
caaccgggaggagttcgtgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgat
gaggagtactggaacagccagaaggacatcctggaggagaagcgggcagtgccggacaggatgtgcagacacaact

acgagctgggcgggcccAtgaccctgcagcAccgag (SEQ ID NO: ~~1-1-0~~2107) ;

DPB1*8301 :

agaattaccttttccaggacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
 caaccgggaggagttcgtgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgat
 5 gaggagtactggaacagccagaaggacTtcctggaggagaagcgggcagtgccggacaggatgtgcagacacaact
 acgagctgggcgggcccatgaccctgcagcgccgag (SEQ ID NO: ~~1-1-1~~2108) ;

DPB1*8401 :

agaattaccttttccaggacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
 caaccgggaggagttcgtgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgaG
 10 gAggagtactggaacagccagaaggacatcctggaggagaagcgggcagtgccggacagggtatgcagacacaact
 acgagctggacgaggccgtgaccctgcagcgccga (SEQ ID NO: ~~1-1-2~~2109) ;

DPB1*8501 :

agaattacgtgtaccagtTaccggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
 caaccgggaggagtacgcgcgttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgct
 15 gcggagtactggaacagccagaaggacatcctggaggagaagcgggcagtgccggacaggatgtgcagacacaact
 acgagctggacgaggccgtgaccctgcagcAccgag (SEQ ID NO: ~~1-1-3~~2110) ;

DPB1*8601 :

gaattacgtgcaccagtTaccggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatctac
 aaccgggaggagttcgtgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgatg
 20 aggaCtactggaacagccagaaggacatcctggaggagGagcgggcagtgccggacaggatgtgcagacacaacta
 cgagctgggcgggcccAtgaccctgcagcgccga (SEQ ID NO: ~~1-1-4~~2111) ;

DPB1*8701 :

agaattacgtgtaccagtTaccggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
 caaccgggaggagttcgtTgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgct
 25 gcggagtactggaacagccagaaggacCtcctggaggagaagcgggcagtgccggacaggatGtgacagacacaact
 acgagctggacgaggccgtgaccctgcagcgccgag (SEQ ID NO: ~~1-1-5~~2112) ;

DPB1*8801 :

agaattacgtgtaccagtTacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
 caaccgggaggagttcgtgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgat
 gaggaCtactggaacagccagaaggacatcctggaggagGagcgggcagtgccggacagggtatgcagacacaact
 acgagctggacgaggccgtgaccctgcagcgccgag (SEQ ID NO: ~~1-1-6~~2113) ;

5 DPB1*8901 :

agaattacgtgtaccaggacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
 caaccgggaggagtacgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgct
 gcggagtactggaacagccagaaggacatcctggaggagaagcgggcagtgccggacaggatGtgcagacacaact
 acgagctggacgaggccgtgaccctgcagcgccgag (SEQ ID NO: ~~1-1-7~~2114) ;

10 DPB1*9001 :

agaattacgtgtaccaggacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
 caaccgggaggagtTcgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgct
 gcggagtactggaacagccagaaggacatcctggaggagaagcgggcagtgccggacagggtatgcagacacaact
 acgagctggacgaggccgtgaccctgcagcgccgag (SEQ ID NO: ~~1-1-8~~2115) ;

15 DPB1*9101 :

agaattacgtgcaccagttacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
 caaccgggaggagttcgtgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgat
 gaggaCtactggaacagccagaaggacCtctggaggagaagcgggcagtgccggacagggtatGtgcagacacaact
 acgagctggacgaggccgtgaccctgcagcgccgag (SEQ ID NO: ~~1-1-9~~2116) ;

20 DPB1*9201 :

agaattacgtgtaccagtTacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
 caaccgggaggagttcgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgat
 gaggaCtactggaacagccagaaggacCtctggaggagaagcgggcagtgccggacagggtatgcagacacaact
 acgagctggacgaggccgtgaccctgcagcgccgag (SEQ ID NO: ~~1-2-0~~2117) ;

25 DPB1*9301 :

agaattacgtgtaccagtTacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
 caaccgggaggagttcGTgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgat

gAggagtactggaacagccagaaggacatcctggaggagGagcgggcagtgccggacaggatGtgacagacacaact
acgagctggacgaggccgtgaccctgcagcgccgag (SEQ ID NO: ~~1-2-1~~2118) ;

DPB1*9601 :

agaattaccttttccaggacggcaggaatgctacgcgtttaatgggacacagcgcttcctggagagatacatcta
5 caaccgggaggagtacgcgcgttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgct
gaggagtactggaacagccagaagGacatcctggaggagaagcgggcagtgccggacaggatgtgcagacacaact
acgagctgggcgggcccatgaccctgcagcgccgag (SEQ ID NO: ~~1-2-2~~2119) ;

In the following, Probe lists DP1-DP4 are shown
10 in Tables 13-1 to 13-3 and Tables 14-1 to 14-3
respectively. Probe-Allele Lists DP1-4 are shown in
Tables 15-1 to 15-5 and Tables 16-1 to 16-5.

Table 13-1

Probe No.	Base Sequence
0	acg cat aga cca aca ggG (SEQ ID No: 123 <u>2120</u>)
1	ag ttt atg ttt gaa ttt gat gaA (SEQ ID No: 124 <u>2121</u>)
2	t ctg gag gag ttt ggc cA (SEQ ID No: 125 <u>2122</u>)
3	g acg cat aga cca aca ggA (SEQ ID No: 126 <u>2123</u>)
4	g ttt atg ttt gaa ttt gat gaC (SEQ ID No: 127 <u>2124</u>)
5	cac act cag gcc gcc aaT (SEQ ID No: 128 <u>2125</u>)
6	ttc tat gtg gat ctg gat aaA (SEQ ID No: 129 <u>2126</u>)
7	ctg gag gag ttt ggc caa A (SEQ ID No: 130 <u>2127</u>)
8	ctg gag gag ttt ggc cG (SEQ ID No: 131 <u>2128</u>)
9	gcc gcg ttt gta cag acC (SEQ ID No: 132 <u>2129</u>)
10	t gaa ttt gat gaa gat gag cA (SEQ ID No: 133 <u>2130</u>)
11	ag ttc tat gtg gat ctg gaT (SEQ ID No: 134 <u>2131</u>)
12	g acc cat aga cca aca ggA (SEQ ID No: 135 <u>2132</u>)
13	t gcc atg ttt gta cag acC (SEQ ID No: 136 <u>2133</u>)
14	at gtg tca act tat gcc aT (SEQ ID NO: 137 <u>2134</u>)
15	ctg gct aac att gct ata tC (SEQ ID No: 138 <u>2135</u>)
16	cat gtg tca act tat gcc aT (SEQ ID No: 139 <u>2136</u>)
17	aac aac aac tta aat atc gct (SEQ ID No: 140 <u>2137</u>)

Table 13-2

Probe No.	Base Sequence
0	gca gtg ccg gac agg G (SEQ ID No: 141 <u>2138</u>)
1	ca gtg ccg gac agg gtA (SEQ ID No: 142 <u>2139</u>)
2	tc gac agc gac gtg ggA (SEQ ID No: 143 <u>2140</u>)
3	c aac ccg gag gag ttc gT (SEQ ID No: 144 <u>2141</u>)
4	ctg ggg ccg cct gat gA (SEQ ID No: 145 <u>2142</u>)
5	g gac atc ctg gag gag G (SEQ ID No: 146 <u>2143</u>)
6	ca gtg ccg gac agg atG (SEQ ID No: 147 <u>2144</u>)
7	a cac aac tac gag ctg gG (SEQ ID No: 148 <u>2145</u>)
8	g ctg ggg ccg cct gaC (SEQ ID No: 149 <u>2146</u>)
9	ag gag gag ccg gca gtT (SEQ ID No: 150 <u>2147</u>)
10	ga tac atc tac aac ccg gaA (SEQ ID No: 151 <u>2148</u>)
11	c tac aac ccg gag gag ttT (SEQ ID No: 152 <u>2149</u>)
12	c tac aac ccg gag gag C (SEQ ID No: 153 <u>2150</u>)
13	g ctg ggg ccg cct gaG (SEQ ID No: 154 <u>2151</u>)
14	gag ctg ggc ggg ccc A (SEQ ID No: 155 <u>2152</u>)
15	ag aat tac gtg tac cag tT (SEQ ID No: 156 <u>2153</u>)
16	gg ccg cct gat gag gaC (SEQ ID No: 157 <u>2154</u>)
17	gg aac agc cag aag gac C (SEQ ID No: 158 <u>2155</u>)
18	ac gag gcc gtg acc ctA (SEQ ID No: 159 <u>2156</u>)
19	c tac aac ccg gag gag tT (SEQ ID No: 160 <u>2157</u>)
20	aac ccg gag gag ctc gT (SEQ ID No: 161 <u>2158</u>)
21	g gac ctc ctg gag gag G (SEQ ID No: 162 <u>2159</u>)
22	ag aat tac gtg cac cag tT (SEQ ID No: 163 <u>2160</u>)
23	aga tac atc tac aac ccg C (SEQ ID No: 164 <u>2161</u>)
24	g gag aga tac atc tac aac A (SEQ ID No: 165 <u>2162</u>)
25	g gca gtg ccg gac agg A (SEQ ID No: 166 <u>2163</u>)
26	gag ctg gtc ggg ccc A (SEQ ID No: 167 <u>2164</u>)
27	ga cac aac tac gag ctg gT (SEQ ID No: 168 <u>2165</u>)
28	cc gtg acc ctg cag cgT (SEQ ID No: 169 <u>2166</u>)
29	gg gca gtg ccg gac agA (SEQ ID No: 170 <u>2167</u>)
30	g gag gag aag ccg gca T (SEQ ID No: 171 <u>2168</u>)

Table 13-3

Probe No.	Base Sequence
31	ggg cgg cct gat gag gT (SEQ ID No: 172 <u>2169</u>)
32	ga cgg cag gaa tgc tac C (SEQ ID No: 173 <u>2170</u>)
33	gg aac agc cag aag gac T (SEQ ID No: 174 <u>2171</u>)
34	g gac ttc ctg gag gag G (SEQ ID No: 175 <u>2172</u>)
35	gg aac agc cag aag gac aA (SEQ ID No: 176 <u>2173</u>)
36	gc cag aag gac ctc ctg T (SEQ ID No: 177 <u>2174</u>)
37	gac ctc ctg gag gag aG (SEQ ID No: 178 <u>2175</u>)
38	aat tac ctt ttc cag gga cT (SEQ ID No: 179 <u>2176</u>)
39	gag aag cgg gca gtg cT (SEQ ID No: 180 <u>2177</u>)
40	ccc atg acc ctg cag cA (SEQ ID No: 181 <u>2178</u>)
41	tg ggg cgg cct gag gA (SEQ ID No: 182 <u>2179</u>)
42	gcc gtg acc ctg cag cA (SEQ ID No: 183 <u>2180</u>)
43	g aat tac gtg cac cag tT (SEQ ID No: 184 <u>2181</u>)
44	ac tgg aac agc cag aag C (SEQ ID No: 185 <u>2182</u>)

Table 14-1

Probe No.	Base Sequence
0	a cca aca ggG gag ttt atg (SEQ ID No: 186 <u>2183</u>)
1	gaa ttt gat gaA gat gag atg (SEQ ID No: 187 <u>2184</u>)
2	ag ttt ggc cAa gcc ttt tc (SEQ ID No: 188 <u>2185</u>)
3	ga cca aca ggA gag ttt atg (SEQ ID No: 189 <u>2186</u>)
4	gaa ttt gat gaC gat gag atg (SEQ ID No: 190 <u>2187</u>)
5	at ctg gat aaA aag gag acc (SEQ ID No: 191 <u>2188</u>)
6	ttt ggc caa Acc ttt tcc tt (SEQ ID No: 192 <u>2189</u>)
7	ag ttt ggc cGa gcc ttt tc (SEQ ID No: 193 <u>2190</u>)
8	t gta cag acC cat aga cca (SEQ ID No: 194 <u>2191</u>)
9	gaa gat gag cAg ttc tat gt (SEQ ID No: 195 <u>2192</u>)
10	cg ttt gta caA acc cat aga (SEQ ID No: 196 <u>2193</u>)
11	g gat ctg gaT aag aag gag (SEQ ID No: 197 <u>2194</u>)
12	act tat gcc aTg ttt gta cag (SEQ ID No: 198 <u>2195</u>)
13	att gct ata tCg aac aac aac (SEQ ID No: 199 <u>2196</u>)
14	g aat atc gcT atc cag cgt (SEQ ID No: 200 <u>2197</u>)

Table 14-2

Probe No.	Base Sequence
0	tAc cag gga cgg cag ga (SEQ ID No: <u>2012198</u>)
1	ccg gac agg Gta tgc aga (SEQ ID No: <u>2022199</u>)
2	g gac agg gtA tgc aga ca (SEQ ID No: <u>2032200</u>)
3	gac gtg ggA gag ttc cg (SEQ ID No: <u>2042201</u>)
4	at tac ctt tTc cag gga cg (SEQ ID No: <u>2052202</u>)
5	g gag ttc gTg cgc ttc g (SEQ ID No: <u>2062203</u>)
6	gg cct gat gAg gag tac t (SEQ ID No: <u>2072204</u>)
7	g gag gag Gag cgg gca (SEQ ID No: <u>2082205</u>)
8	g gac agg atG tgc aga ca (SEQ ID No: <u>2092206</u>)
9	gag ctg gGc ggg ccc (SEQ ID No: <u>2102207</u>)
10	cgg cct gaC gag gag ta (SEQ ID No: <u>2112208</u>)
11	cgg gca gtT ccg gac ag (SEQ ID No: <u>2122209</u>)
12	c aac cgg gaA gag ttc gt (SEQ ID No: <u>2132210</u>)
13	g gag gag ttT gtg cgc tt (SEQ ID No: <u>2142211</u>)
14	g gag gag Ctc gtg cgc (SEQ ID No: <u>2152212</u>)
15	cgg cct gaG gcg gag t (SEQ ID No: <u>2162213</u>)
16	c ggg ccc Atg acc ctg (SEQ ID No: <u>2172214</u>)
17	tg tac cag tTa cgg cag g (SEQ ID No: <u>2182215</u>)
18	t gat gag gaC tac tgg aac (SEQ ID No: <u>2192216</u>)
19	cag aag gac Ctc ctg gag (SEQ ID No: <u>2202217</u>)
20	gtg acc ctA cag cgc cg (SEQ ID No: <u>2212218</u>)
21	g gag gag tTc gcg cgc (SEQ ID No: <u>2222219</u>)
22	g gag ctc gTg cgc ttc g (SEQ ID No: <u>2232220</u>)
23	aat tac gtg Cac cag tta cg (SEQ ID No: <u>2242221</u>)
24	tac aac cgg Cag gag tac (SEQ ID No: <u>2252222</u>)
25	atc tac aac Agg cag gag t (SEQ ID No: <u>2262223</u>)
26	ccg gac agg Ata tgc aga (SEQ ID No: <u>2272224</u>)
27	c gag ctg gTc ggg ccc (SEQ ID No: <u>2282225</u>)
28	g ccg gac agA gta tgc ag (SEQ ID No: <u>2292226</u>)
29	g cac cag tTa cgg cag g (SEQ ID No: <u>2302227</u>)
30	g cgg gca Ttg ccg gac (SEQ ID No: <u>2312228</u>)

Table 14-3

Probe No.	Base Sequence
31	ct gat gag gTg tac tgg aa (SEQ ID No: <u>2322229</u>)
32	gaa tgc tac Ccg ttt aat gg (SEQ ID No: <u>2332230</u>)
33	cag aag gac Ttc ctg gag (SEQ ID No: <u>2342231</u>)
34	ag aag gac aAc ctg gag g (SEQ ID No: <u>2352232</u>)
35	gac ctc ctg Tag gag aag (SEQ ID No: <u>2362233</u>)
36	g gag gag aGg cgg gca (SEQ ID No: <u>2372234</u>)
37	g gac cag tTa cgg cag g (SEQ ID No: <u>2382235</u>)
38	tc cag gga cTg cag gaa t (SEQ ID No: <u>2392236</u>)
39	g gca gtg cTg gac agg g (SEQ ID No: <u>2402237</u>)
40	g ctg ggc gGg ccc atg (SEQ ID No: <u>2412238</u>)
41	cgg cct gaG gag gag ta (SEQ ID No: <u>2422239</u>)
42	gg cct gag gAg gag tac t (SEQ ID No: <u>2432240</u>)
43	agc cag aag Cac atc ctg (SEQ ID No: <u>2442241</u>)

Table 15-1

Allele Number		Probe Number for Detection			
DPA1*010301	0	1	2		
DPA1*010302	3				
DPA1*0104	4				
DPA1*0105	5				
DPA1*0106	6				
DPA1*0107	7				
DPA1*0108	4	8			
DPA1*020101	9	6	5		
DPA1*020102	6	5			
DPA1*020103	10	5			
DPA1*020104	6	5			
DPA1*020105	3	10	5		
DPA1*020106	9	11	5		
DPA1*020201	12	11	5		
DPA1*020202	13	12	10	5	
DPA1*020203	14	5			
DPA1*0203	9	5			
DPA1*0301	15				
DPA1*0302	16				
DPA1*0401	17				

Table 15-2

Allele Number	Probe Number for Detection				
DPB1*010101	0	1			
DPB1*010102	2				
DPB1*020102	3	4	5	6	7
DPB1*020103	8				
DPB1*020104	9				
DPB1*020105	10				
DPB1*020106	11				
DPB1*0202	12	13	5	14	
DPB1*030101	15	3	16	17	
DPB1*030102	18				
DPB1*0401	19	6	7		
DPB1*0402	3	4	6	7	
DPB1*0501	12	20	13	6	
DPB1*0601	16	17	21	6	
DPB1*0801	3	4	5		
DPB1*0901	22	16	5		
DPB1*1001	22	3	4	5	
DPB1*110101	23				
DPB1*110102	24				
DPB1*1301	15	5	25		
DPB1*1401	22	3	16	17	
DPB1*1501	23	26			
DPB1*1601	3	4	5	6	
DPB1*1701	22	16	5	6	
DPB1*1801	3	4	27		
DPB1*1901	13	5	25		
DPB1*200101	16	17	6		
DPB1*200102	28				
DPB1*2101	15	12	13	5	6
DPB1*2201	12	13	5	6	

Table 15-3

Allele Number	Probe Number for Detection				
DPB1*2301	3	6	7		
DPB1*2401	13	14			
DPB1*2501	15	3	4	17	
DPB1*260101	29				
DPB1*2701	15	6			
DPB1*2801	4	17	27		
DPB1*2901	16	17	21		
DPB1*3001	22	13	5	6	
DPB1*3101	30				
DPB1*3201	31				
DPB1*3301	5	6	7		
DPB1*3401	30	26			
DPB1*3501	22	3	16		
DPB1*3601	15	12	20	13	6
DPB1*3701	3	4	5		
DPB1*3801	32				
DPB1*3901	6	7			
DPB1*4001	27				
DPB1*4101	33	34			
DPB1*4401	12	17	21		
DPB1*4501	3	4	17		
DPB1*4601	16	5	14		
DPB1*4701	13	5	14		
DPB1*4801	12	4	7	14	
DPB1*4901	4	6	7		
DPB1*5001	3	16	17		
DPB1*5101	19	4	6	7	
DPB1*5201	15	3	17		
DPB1*5301	4	27			
DPB1*5401	22	13	5		

Table 15-4

Allele Number	Probe Number for Detection			
DPB1*5501	22	3	5	6
DPB1*5601	19	17		
DPB1*5701	3	16	17	
DPB1*5801	12	5	6	
DPB1*5901	4	17	6	7
DPB1*6001	35			
DPB1*6101N	36			
DPB1*6201	12	20	27	
DPB1*6301	12	6		
DPB1*6401N	16	17	21	6
DPB1*6601	22	19	6	7
DPB1*6701	22	3	17	
DPB1*6801	3	4		
DPB1*6901	16	37		
DPB1*7001	3	16	17	
DPB1*7101	3	5	6	7
DPB1*7201	17	6	7	
DPB1*7301	4	17	7	
DPB1*7401	23	26		
DPB1*7501	3	4	7	
DPB1*7601	22	16	17	
DPB1*7701	38			
DPB1*7801	39			
DPB1*7901	15	3	4	
DPB1*8001	16	14		
DPB1*8101	4	5	6	7
DPB1*8201	14	40		
DPB1*8301	33			
DPB1*8401	13	41		
DPB1*8501	15	42		

Table 15-5

Allele Number		Probe Number for Detection				
DPB1*8601	43	16	5	14		
DPB1*8701	15	3	17	6		
DPB1*8801	15	16	5			
DPB1*8901	6					
DPB1*9001	19					
DPB1*9101	16	17	6			
DPB1*9201	15	16	17			
DPB1*9301	15	3	4	5	6	
DPB1*9601	44					

Table 16-1

Allele Number	Probe Number for Detection			
DPA1*010301	0	1	2	
DPA1*010302	3			
DPA1*0104	4			
DPA1*0106	5			
DPA1*0107	6			
DPA1*0108	4	7		
DPA1*020101	8	5	7	
DPA1*020102	5	7		
DPA1*020103	9	7		
DPA1*020104	10			
DPA1*020105	3	9	7	
DPA1*020106	8	11	7	
DPA1*020201	3	11	7	
DPA1*020202	8	3	9	7
DPA1*020203	12	7		
DPA1*0203	8	7		
DPA1*0301	13			
DPA1*0302	12			
DPA1*0401	14			

Table 16-2

Allele Number	Probe Number for Detection					
DPB1*010101	0	1	2			
DPB1*010102	3					
DPB1*020102	4	5	6	7	8	9
DPB1*020103	10					
DPB1*020104	11					
DPB1*020105	12					
DPB1*020106	13					
DPB1*0202	14	15	7	16		
DPB1*030101	17	5	18	19		
DPB1*030102	20					
DPB1*0401	4	21	8	9		
DPB1*0402	4	5	6	8	9	
DPB1*0501	4	14	22	15	8	
DPB1*0601	18	19	7	8		
DPB1*0801	5	6	7			
DPB1*0901	23	18	7			
DPB1*1001	23	6	7			
DPB1*110101	17	24				
DPB1*110102	25					
DPB1*1301	17	7	26			
DPB1*1401	23	5	18	19		
DPB1*1501	24	16				
DPB1*1601	4	5	6	7	8	
DPB1*1701	23	18	7	8		
DPB1*1801	5	6	27			
DPB1*1901	4	15	7	26		
DPB1*200101	18	19	8			
DPB1*200102	18	19	8			

Table 16-3

Allele Number	Probe Number for Detection				
DPB1*2101	17	14	15	7	8
DPB1*2201	4	14	15	7	8
DPB1*2301	4	5	8	9	
DPB1*2401	15	16			
DPB1*2501	17	5	6	19	
DPB1*260101	28				
DPB1*260102	17				
DPB1*2701	17	8			
DPB1*2801	6	19	27		
DPB1*2901	18	19	7		
DPB1*3001	23	29	15	7	8
DPB1*3101	30				
DPB1*3201	31				
DPB1*3301	4	7	8	9	
DPB1*3401	30	16			
DPB1*3501	23	5	18		
DPB1*3601	17	14	22	15	8
DPB1*3701	17	5	6	7	
DPB1*3801	32				
DPB1*3901	4	8	9		
DPB1*4001	4	27			
DPB1*4101	33	7			
DPB1*4401	14	19	7		
DPB1*4501	29	5	6	19	
DPB1*4601	4	18	7	16	
DPB1*4701	15	7	16		
DPB1*4801	14	6	9	16	
DPB1*4901	6	8	9		
DPB1*5001	5	18	19		
DPB1*5101	4	21	6	8	9

Table 16-4

Allele Number	Probe Number for Detection				
DPB1*5201	17	5	19		
DPB1*5301	4	6	27		
DPB1*5401	23	29	15	7	
DPB1*5501	23	7	8		
DPB1*5601	17	21	19		
DPB1*5701	5	18	19		
DPB1*5801	29	14	7	8	
DPB1*5901	6	19	8	9	
DPB1*6001	34				
DPB1*6101N	35				
DPB1*6201	14	22	27		
DPB1*6301	14	8			
DPB1*6401N	18	19	7	8	
DPB1*6501	4				
DPB1*6601	23	16			
DPB1*6701	23	5	19		
DPB1*6801	4	5	6		
DPB1*6901	18	36			
DPB1*7001	37	5	18	19	
DPB1*7101	5	7	8	9	
DPB1*7201	19	8	9		
DPB1*7301	6	19	9		
DPB1*7401	17	24	16		
DPB1*7501	5	6	9		
DPB1*7601	23	18	19		
DPB1*7701	38				
DPB1*7801	39				
DPB1*7901	17	5	6		
DPB1*8001	4	18	40		
DPB1*8101	4	6	7	8	9

Table 16-5

Allele Number	Probe Number for Detection				
	4	5	6	8	9
DPB1*8201	4	5	6	8	9
DPB1*8301	33				
DPB1*8401	41	42			
DPB1*8501	17	8			
DPB1*8601	23	7	16		
DPB1*8701	17	5	19	8	
DPB1*8801	17	18	7		
DPB1*8901	8				
DPB1*9001	21				
DPB1*9101	23	19	8		
DPB1*9201	17	18	19		
DPB1*9301	17	5	6	7	8
DPB1*9601	43				

(Example 9)

Probes for identification of HLA-DQ allele

Extraction of DNA from 1 ml of human blood was performed using GFX Genomic Blood DNA Purification
 5 Kit from Amersham Biosciences in the same manner as in Example 1.

Next, quantitative PCR was carried out in the same manner as in Example 1 except that probes in the probe lists DQ1A and DQ1B were used and 2 μ l of the
 10 mixed primers consisting of 1 μ l each of respective solutions of the following primers (10 pmol/ μ l) and 6 μ l of ultra pure water were used:

GGTGAGGTAAGTATCTTG (SEQ ID NO: ~~165~~2413)

TCCTTCTGGCTGTTCCAGTACTC (SEQ ID NO: ~~166~~2414).

15 After PCR amplification, referring to Amp Plot and Dissociation curves on a display of 5700 software, and to the allele-probe list (Table 19A, 19B-1 and 19B-2), it was identified as DQA1*0103 and DQB1*060101.

20 (Example 10)

Extraction of DNA from 1 ml of human blood was performed in the same way as in Example 3. PCR of human HLA-DQ was then performed in the same manner as in Example 2 except that 3 μ l of the mixed primer
 25 consisting of 1 μ l each of the solutions containing the following sequences at 10 pmol/ μ l respectively, and 12 μ l of ultra pure water were used:

GGTGAGGTAAGTATCTTG (SEQ ID NO: ~~165~~2413)

ATGATCCTAAACAAAGCTCTG (SEQ ID NO: ~~167~~2415)

TGTGCTACTTCACCAACGGGACG (SEQ ID NO: ~~168~~2416).

At the same time, a DNA microarray was prepared
 5 to identify the allele in the specimen described
 above in the same manner as in Example 2, except that
 probes in the probe list of Tables 18A, 18B-1 and
 18B-2 were used to form the probe spots respectively.

Then, hybridization was performed using the
 10 above specimen and the prepared DNA microarray in the
 same manner as in Example 2. Fluorometry measurement
 was conducted with GenePix4000B (Axon). Referring to
 the allele-probe list (Tables 20A, 20B-1 and 20B-2),
 it was identified as DQA1*0103 and DQB1*060101.

15

Allele list

DQA1*010101

atgatcctaacaagctctgctgctggggccctcgctctgaccaccgtgatgagcccctgtggaggtgaagaca
 ttgtggctgaccacgttgcctcttggtgtaaacttgtaccagttttacggccctctggccagtacacccatga
 20 atttgatggagatgagGagttctacgtggacctggagaggaaggagactgcctggcggtggcctgagttcagcaaa
 tttggaggttttgacccgcagggtgcactgagaacatggctgtggcaaaacacaacttgaacatcatgattaaac
 gctacaactctaccgctgctaccaatgaggttcctgaggtcacagtgtttccaagtctcccgtgacactgggtca
 gccaacaccctcatttgtcttggtgacaacatctttcctcctgtggtcaacatcacatggctgagcaatgggcag
 tcagtcacagaaggtgtttctgagaccagcttcctctccaagagtgatcattccttcttcaagatcagttacctca
 25 ccttcctccctctgctgatgagatttatgactgcaaggtggagcactggggcctggaccagcctcttctgaaaca
 ctggggagcctgagattccagcccctatgtcagagctcacagagactgtggtctgcgccctgggggtgtctgtgggc
 ctctgtgggcattgtgtggtgggcactgtcttcatcatccaaggcctgcgttcagttggtgcttccagacaccaagggc

cattgtga (SEQ ID NO: ~~169~~2417)

DQA1*010102

atgatcctaatacaagctctgctgctgggggccctcgctctgaccaccgtgatgagcccctgtggaggtgaagaca
 ttgtggctgaccacgttgccctctgtggtgtaaacttgtaggagttttacgggccctctggccagtacacccatga
 5 atttgatggagatgaggagttctacgtggacctggagaggaaggagactgcctggcggtggcctgagttcagcaaa
 tttggaggttttgacccgcagggtgcaactgagaacatggctgtggcaaaacacaacttgaacatcatgattaac
 gctacaactctaccgctgctaccaatgaggttcctgaggtcacagtgtttccaagtctcccgtagactgggtca
 gcccaacaccctcatttgtcttgggacaacatctttcctcctgtggtcaacatcacatggctgagcaatgggcag
 tcagtcacagaaggtgtttctgagaccagcttcctctccaagagtgatcattccttcttcaagatcagttacctca
 10 ccttcctcccttctgctgatgagatttatgactgcaaggtggagcactggggcctggaccagcctcttctgaaaca
 ctgggagcctgagattccagcccctatgtcagagctcacagagactgtggtctgcgccctgggggttgtctgtgggc
 ctctgtgggcattgtggtgggcactgtcttcatcatccaaggcctgcgttcagttggtgcttccagacaccaGgggc
 cattgtga (SEQ ID NO: ~~170~~2418)

DQA1*010201

15 atgatcctaatacaagctctgctgctgggggccctcgctctgaccaccgtgatgagcccctgtggaggtgaagaca
 ttgtggctgaccacgttgccctctgtggtgtaaacttgtaggagttttacgggccctctggccagtacacccatga
 atttgatggagatgagcagttctacgtggacctggagaggaaggagactgcctggcggtggcctgagttcagcaaa
 tttggaggttttgacccgcagggtgcaactgagaacatggctgtggcaaaacacaacttgaacatcatgattaac
 gctacaactctaccgctgctaccaatgaggttcctgaggtcacagtgtttccaagtctcccgtagactgggtca
 20 gcccaacaccctcatttgtcttgggacaacatctttcctcctgtggtcaacatcacatggctgagcaatgggcag
 tcagtcacagaaggtgtttctgagaccagcttcctctccaagagtgatcattccttcttcaagatcagttacctca
 ccttcctcccttctgctgatgagatttatgactgcaaggtggagcactggggcctggaccagcctcttctgaaaca
 ctgggagcctgagattccagcccctatgtcagagctcacagagactgtggtctgtgccctgggggttgtctgtgggc
 ctctAtgggcattgtggtgggcactgtcttcatcatccaaggcctgcgttcagttggtgcttccagacaccaagggc
 25 cattgtga (SEQ ID NO: ~~171~~2419)

DQA1*010202

atgatcctaatacaagctctgctgctgggggccctcgctctgaccaccgtgatgagcccctgtggaggtgaagaca

ttgtggctgaccacgttgccctctgtggtgtaaaccttgtaggagttttacggccctctggccagtacacccatga
 atttgatggagatgagcagttctacgtggacctggagaggaaggagactgcctggcgggtggcctgagttcagcaaa
 tttggagggttttgaccgcagggtgacctgagaacatggctgtggcaaaacacaacttgaacatcatgattaaac
 gctacaactctaccgctgctaccaatgaggttcctgaggtcacagtgtttccaagtctcccgtagacctgggtca
 5 gccaacaccctcatCtgtcttgtagacaacatctttcctcctgtggtcaacatcacatggctgagcaatgggcag
 tcagtcacagaagggttttctgagaccagcttcctctccaagagtgatcattccttcttcaagatcagttacctca
 ccttcctcccttctgctgatgagatttatgactgcaagggtggagcactggggcctggaccagcctcttctgaaaca
 ctgggagcctgagattccagcccctatgtcagagctcacagagactgtggtctgtgccctgggggttctgtgtgggc
 ctcAtgggcattgtggtgggcactgtcttcatcatccaaggcctgcgttcagttggtgcttccagacaccaagggc
 10 cattgtga (SEQ ID NO: 1722420)

DQA1*0103

atgatcctaataaaagctctgctgctggggccctcgctctgaccaccgtgatgagcccctgtggaggtgaagaca
 ttgtggctgaccatgttgccctctgtggtgtaaaccttgtaggagttttacggccctctggccagttcacccatga
 atttgatggagatgagcagttctacgtggacctggagaagaaggagactgcctggcgggtggcctgagttcagcaaa
 15 tttggagggttttgaccgcagggtgacctgagaacatggctgtggcaaaacacaacttgaacatcatgattaaac
 gctacaactctaccgctgctaccaatgaggttcctgaggtcacagtgtttccaagtctcccgtagacctgggtca
 gccaacaccctcatctgtcttgtagacaacatctttcctcctgtggtcaacatcacatggctgagcaatgggcac
 Gcagtcacagaagggttttctgagaccagcttcctctccaagagtgatcattccttcttcaagatcagttacctca
 ccttcctcccttctgctgatgagatttatgactgcaagggtggagcactggggcctggaccagcctcttctgaaaca
 20 ctgggagcctgagattccagcccctatgtcagagctcacagagactgtggtctgtgccctgggggttctgtgtgggc
 ctctgtgggcattgtggtgggcactgtcttcatcatccaaggcctgcgttcagttggtgcttccagacaccaagggc
 ccttgtga (SEQ ID NO: 1732421)

DQA1*010401

atgatcctaataaaagctctgctgctggggccctcgctctgaccaccatgatgagcccctgtggaggtgaaggca
 25 ttgtggctgaccacgttgccctctgtggtgtaaaccttgtaggagttttacggccctctggccagtacacccatga
 atttgatggagatgaggagttctacgtggacctggagaggaaggagactgcctggcgggtggcctgagttcagcaaa
 tttggagggttttgaccgcagggtgacctgagaacatggctgtggcaaaacacaacttgaacatcatgattaaac

gctacaactctaccgctgctaccaatgaggttcctgaggtcacagtgtttccaagtctcccgtagacactgggtca
 gcccaacaccctcatttgtcttgggacaacatctttcctcctgtggtcaacatcacatggctgagcaatgggcag
 tcagtcacagaaggtgtttctgagaccagcttcctctccaagagtgatcattccttctcaagatcagttacctca
 ccttcctcccttctgctgatgagatttatgactgcaaggtggagcactggggcctggaccagcctcttctgaaaca
 5 ctgggagcctgagattccagcccctatgtcagagctcacagagactgtggtctgcAccctggggttgtctgtgggc
 ctctgtgggcattgtggtgggcactgtcttcatcatccaaggcctgcgttcagttggtgcttccagacaccaagggc
 cattgtga (SEQ ID NO:1742422)

DQA1*010402

atgatcctaacaagctctgctgctggggccctcgctctgaccaccatgatgagcccttgtggaggtgaagGca
 10 ttgtggctgaccacgttgcctcttgtggtgtaaacttgtaccagttttacggtccctctggccagtacacccatga
 atttgatggagatgaggagttctacgtggacctggagaggaaggagactgcctggcggtggcctgagttcagcaaa
 tttggaggttttgaccgcagggtgcaactgagaaacatggctgtggcaaaacacaacttgaacatcatgattaaac
 gctacaactctaccgctgctaccaatgaggttcctgaggtcacagtgtttccaagtctcccgtagacactgggtca
 gcccaacaccctcatttgtcttgggacaacatctttcctcctgtggtcaacatcacGtggctgagcaatgggcag
 15 tcagtcacagaaggtgtttctgagaccagcttcctctccaagagtgatcattccttctcaagatcagttacctca
 ccttcctcccttctgctgatgagatttatgactgcaaggtggagcactggggcctggaccagcctcttctgaaaca
 ctggg (SEQ ID NO:1752423)

DQA1*0105

atgatcctaacaagctctgctgctggggccctcgctctgaccaccatgatgagcccttgtggaggtgaagGca
 20 ttgtggctgaccacgttgcctcttgtggtgtaaacttgtaccagttttacggtccctctggccagtacacccatga
 atttgatggagatgaggagttctacgtggacctggagaggaaggagactgcctggcggtggcctgagttcagcaaa
 tttggaggttttgaccgcagggtgcaactgagaaacatggctgtggcaaaacacaacttgaacatcatgattaaac
 gctacaactctaccgctgctaccaatgaggttcctgaggtcacagtgtttccaagtctcccgtagacactgggtca
 gcccaacaccctcatttgtcttgggacaacatctttcctcctgtggtcaacatcacatggctgagcaatgggcag
 25 tcagtcacagaaggtgtttctgagaccagcttcctctccaagagtgatcattccttctcaagatcagttacctca
 ccttcctcccttctgctgatgagatttatgactgcaaggtggagcactggggcctggaccagcctcttctgaaaca
 ctgggagcctgagattccagcccctatgtcagagctcacagagactgtggtctgcgccctggggttgtctgtgggc

ctcgtgggcattgtggtgggcactgtcttcatcatccaaggcctgcgttcagttggtgcttccaga (SEQ ID
NO: 4762424)

DQA1*0106

ctgaccacgttgccctcttgtggtgtaaacttgtaccagttttacgggtccctctggccagtacacccatgaatttga
5 tggagatgagcagttctacgtggacctggagaggaaggagGctgcctggcgggtggcctgagttcagcaaatttga
ggttttgaccgcagggtgcactgagaaacatggctgtggcaaaacacaacttgaacatcatgattaaacgctaca
actctaccgctgtaccaatg (SEQ ID NO: 4772425)

DQA1*0201

atgatcctaacaagaagctctgatgctgggggccctcgccctgaccaccgtgatgagcccttgtggaggtgaagaca
10 ttgtggctgaccacgttgccctttacggtgtaaacttgtaccagttttacgggtccctctggccagttcacccatga
atgtgatggagacgaggagttctatgtggacctggagaggaaggagactgtctggaagttgcctctgttccacaga
Cttaga...ttgaccgcgaatttgcactgacaaacatcgctgtgctaaaacataacttgaacatcctgattaaac
gctccaactctaccgctgtaccaatgaggttcctgaggtcacagtgtttccaagtctcccgtgacactgggtca
gccaacaccctcatctgtcttgggacaacatctttcctcctgtggtcaacatcacctggctgagcaatgggcac
15 tcagtcacagaaggtgtttctgagaccagcttctctccaagagtgatcattccttcttcaagatcagttacctca
ccttctccttctgtctgatgagatttatgactgcaaggtggagcactggggcctggatgagcctctctgaaaca
ctgggagcctgagattccagcacctatgtcagagctcacagagactgtggtctgtgccctggggttgtctgtgggc
ctcgtgggcattgtggtggggaccgtcttgatcatccgaggcctgcgttcagttggtgcttccagacaccaagggc
ccttgtga (SEQ ID NO: 4782426)

20 DQA1*030101

atgatcctaacaagaagctctgatgctgggggccctcgccctgaccaccgtgatgagcccttgtggaggtgaagaca
ttgtggctgaccatgttgccctttacggtgtaaacttgtaccagttttacgggtccctctgggcagtacagccatga
atgtgatggagacgaggagttctatgtggacctggagaggaaggagactgtctggcagttgcctctgttccgcaga
tttagaagatttgaccgcgaatttgcactgacaaacatcgctgtgctaaaacataacttgaacatcgtgattaaac
25 gctccaactctaccgctgtaccaatgaggttcctgaggtcacagtgtttccaagtctcccgtgacactgggtca
gccaacaccctcatctgtcttgggacaacatctttcctcctgtggtcaacatcacctggctgagcaatgggcac
tcagtcacagaaggtgtttctgagaccagcttctctccaagagtgatcattccttcttcaagatcagttacctca

ccttcctcccttctgctgatgagatttatgactgcaaggtggagcactggggcctggatgagcctcttctgaaaca
 ctgggagcctgagattccaAcacctatgtcagagctcacagagactgtggtctgcgccctggggttgctgtgggc
 ctctgtgggcattgtggtggggaccgtcttgatcatccgaggcctgcgttcagttggtgcttccagacaccaagggc
 ccttgtga (SEQ ID NO: ~~179~~2427)

5 DQA1*0302

atgatcctaacaagctctgatgctggggccctcgccctgaccaccgtgaGgagcccttgtggaggtgaagaca
 ttgtggctgaccatgttgccctttacggtgtaaacctgtaccagctttatggtccctctgggcagtcagccatga
 atttgatggagacgaggagttctatgtggacctggagaggaaggagactgtctggcagttgcctctgttccgcaga
 tttagaagatttgaccgcaatttgactgacaaacatcgctgtgctaaaacataacttgaacatcgtgattaaac
 10 gctccaactctaccgtgctaccaatgaggttcctgaggtcacagtgtttccaagtctcccgtagactgggtca
 gccaacaccctcatctgtcttgtggacaacatctttcctcctgtggtcaacatcacctggctgagcaatgggcac
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DQA1*0303

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 20 atttgatggagacgaggagttctatgtggacctggagaggaaggagactgtctggcagttgcctctgttccgcaga
 tttagaagatttgaccgcaatttgactgacaaacatcgctgtgctaaaacataacttgaacatcgtgattaaac
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ccttgtga (SEQ ID NO:~~181~~2429)

DQA1*040101

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 5 atttgatggagacgagcagttctacgtggacctggggaggaaggagactgtctggtgtttgcctgtttcagacaa
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DQA1*040102

15 ctgaccatgttgccctttatggtgtaaacttgtagcagtttacggccctctggccagtacacccatgaatttga
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 ...ttgaccgcaatttgactgacaaacatcgctgtgacaaaacacaacttgaacatcctgattaaacgctcca
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 20 acagaaggtgtttctgagaccagcttcctctccaagagtgatcattccttcttcaagatcagttacctcaccttcc
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SEQ ID NO:~~183~~2431)

DQA1*050101

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 25 ttgtggctgaccacgtcgccctttatggtgtaaacttgtagcagtttacggccctctggccagtacacccatga
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gctccaactctaccgctgctaccaatgaggttcctgaggtcacagtgttttccaagtctcccgtagacactgggtca
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 5 ctgggagcctgagattccagcccctatgtcagagctcacagagactgtggtctgcgccctgggAttgtctgtgggc
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DQA1*050102

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 attaaacgctccaactctaccgctgctaccaat (SEQ ID NO: 1852433)

DQA1*0502

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 Q ID NO: 1862434)

DQA1*0503

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 20 ttgtggctgaccacgtgcctcttatggtgtaaacttgtaccagtcttacgggccctctggccagtacacccatga
 atttgatggagatgagcagttctacgtggacctggggaggaaggagactgtctggtgtttgcctgttctcagacaa
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 gctccaactctaccgctgctaccaatgaggttcctgaggtcacagtgttttccaagtctcccgtagacactgggtca
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ccttgtga (SEQ ID NO: 1872435)

DQA1*0504

ctgaccacgtcgcctcttatggtgtaaacttgtaccagtcttacggcTctctggccagtacacccatgaatttga
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DQA1*0505

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15 tcagtcacagaaggtgtttctgagaccagcttctctccaagagtgatcattccttcttcaagatcagttacctca
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ccttgtga (SEQ ID NO: 1892437)

20 DQA1*060101

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25 gctccaactctaccgctgctaccaatgaggttcctgaggtcacagtgtttccaagtctcccgtgacGctgggtca
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 cCttgtga (SEQ ID NO:~~190~~2438)

5 DQA1*060102

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 ga (SEQ ID NO:~~191~~2439)

10 DQB1*050101

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 Q ID NO:~~192~~2440)

DQB1*050102

20 gggcctgtgctacttcaccaacgggacggagcgcgtgcggggtgtgaccagacacatctataaccgagaggagtac
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 cgggatcctgcagagg (SEQ ID NO:~~193~~2441)

DQB1*050201

25 gggcctgtgctacttcaccaacgggacggagcgcgtgcggggtgtgaccagacacatctataaccgagaggagtac
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5 Q ID NO: ~~194~~2442)

DQB1*050202

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 10 cgggatcctgcagagga (SEQ ID NO: ~~195~~2443)

DQB1*050301

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 Q ID NO: ~~196~~2444)

20 DQB1*050302

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 ID NO: ~~197~~2445)

DQB1*0504

gggcctgtgctacttcaccaacgggacggagcgcgtgcggggtgtgaccagatacatctataaccgagaagagtac
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N0:1982446)

DQB1*0201

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5 gccagaaggacatcctggagaggaaAcgggcgcggtggacaggggtgtgcagacacaactaccagttggagctccg
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10 Q ID N0:1992447)

DQB1*0202

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15 cacgaccttgacgcgcgagtggagcccacagtgacctctcccatccaggacagaggccctcaaccaccacaac
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Q ID N0:2002448)

20 DQB1*0203

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25 atttctatccagcccagatcaaagtccggtggtttcggaatgGccaggaggagacagctggcggttgtgtccacccc
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N0:2012449)

DQB1*030101

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Q ID NO:2022450)

10 DQB1*030102

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gccagaaggaagtccctggagaggacccgggaggagttggacacggtgtgcagacacaactaccagttggagctccg
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15 DQB1*0302

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Q ID NO:2042452)

DQB1*030302

25 gggcatgtgctacttcaccaacgggacggagcgcgtgcgttcttgaccagatacatctataaccgagaggagtag
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 5 Q ID NO:2052453)

DQB1*030303

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 10 cacgaccttgacgcgag (SEQ ID NO:2062454)

DQB1*0304

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 Q ID NO:2072455)

20 DQB1*030501

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Q ID NO:2082456)

DQB1*030502

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DQB1*0306

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10 gccagaaggacatcctggaggaggaccggcgctcggtggacaccgtAtgcagacacaactaccagttggagctccg
cacgaccttgacgcgcgag (SEQ ID NO:2102458)

DQB1*0307

gggcatgtgctacttcaccaacgggacggagcgcgtgcgtcttgtagaccagatacatctataaccgagaggagtag
gcacgcttcgacagcgacgtgggggtgtatcgggTggtgacgccgctggggccgcctgccgccgtagtactggaaca
15 gccagaaggaagtcttgagaggaccgggaggagttggacacgggtgtgcagacacaactaccagttggagctccg
cacgaccttgacgcgcgga (SEQ ID NO:2112459)

DQB1*0308

gggcatgtgctacttcaccaacgggacggagcgcgtgcgtcttgtagaccagatacatctataaccgagaggagtag
gcAcgcttcgacagcgacgtgggggtgtaTcgggcggtgacgccgctggggccgcctgCgcccagtagtactggaaca
20 gccagaaggaagtcttgaggggaccgggaggagttggacaCggtgtgcagacacaactaccagttggagctccg
cacgaccttgacgcgcgag (SEQ ID NO:2122460)

DQB1*0309

ggccatgtgctacttcaccaacgggacggagcgcgtgcgttatgtgaccagatacatctataaccgagaggagtag
gcacgcttcgacagcgacgtggagggtgtaccgggcggtgacgccgctggggccgcctgacgccgtagtactggaaca
25 gccagaaggaagtcttgagaggaccgggaggagttggacacgggtgtgcagacacaactaccagttggagctccg
cacgaccttgacgcgcgagtggagcccacagtaccatctcccatccaggacagaggccctcaaccaccacaac
ctgctggtctgctcagtgacagatttctatccagccagatcaaagtccggtggtttcggaatgaccaggaggaga

caaccggcgttgtgtccaccccccttattaggaacgggtgactggaccttccagatcctggtgatgctggaaatgac
tccccagcatgcG...gtctacacctgccacgtggagcacccagcctccagaaccccatcacctgggagtgg (SE
Q ID NO:2432461)

DQB1*0310

5 ggccatgtgctacttcaccaacgggacggagcgcgtgcgttatgtgaccagatacatctataaccgagaggagtac
gcacgcttcgacagcgacgtgggggtgtaTcgggoggtgacgccgctggggccgcctgAcgccgagtactggaaca
gccagaaggaagtctctggagaggacccgggaggagttggacacggtgtgcagacacaactaccagttggagctccg
cacgaccttgacgcgagtgaggacccacagtgacctctccccatccaggacagaggccctcaaccaccacaac
ctgctggtctgctcagtgacagatttctatccagcccagatcaaagtccggtggtttcggaatgaccaggaggaga
10 caaccggcgttgtgtccaccccccttattaggaacgggtgactggaccttccagatcctggtgatgctggaaatgac
tccccagcAtggagaGgtctacacctgccacgtggagcacccagcctccagaAccccatcacctgggagtgg (SE
Q ID NO:2442462)

DQB1*0311

gggcctgtgctacttcaccaacgggacggagcgcgtgcgtcttTtgaccagatacatctataaccgagaggagtac
15 gcAcgcttcgacagcgacgtgggggtgtaTcgggoggtgacgccgctggggccgcctgGcgccgagtactggaaca
gccagaaggaagtctctggagAggacccgggaggagttggacaGggtgtgcagacacaactaccagttggagctccg
cacgaccttgacgcgag (SEQ ID NO:2452463)

DQB1*0312

ggccatgtgctacttcaccaacgggacggagcgcgtgcgtcTtgaccagatacatctataaccgagaggagtac
20 gcAcgcttcgacagcgacgtgggggtgtaTcgggoggtgacgccgctggggccgcctgAcgccgagtactggaaca
gccagaaggaagtctctggagAggacccgggaggagTtgacacggtgtgcagacacaactaccagttggagctccg
cacgaccttgacgcgag (SEQ ID NO:2462464)

DQB1*0313

ggccatgtgctacttcaccaacgggacggagcgcgtgcgttatgtgaccagatacatctataaccgagaggagtac
25 gcacgcttcgacagcgacgtggaggtgtaccgggoggtgacgccgctggggccgcctgacgccgagtactggaaca
gccagaaggaagAcctggagaggacccgggaggagttggacacggtgtgcagacacaactaccagttggagctccg
cacgaccttgacgcgag (SEQ ID NO:2472465)

DQB1*0401

gggcatgtgctacttcaccaacgggaccgagcTcgtgcggggtgtgaccagatacatctataaccgagaggagtag
 gcgcgcttcgacagcgacgtgggggtgtatcgggcggtgacgccgctggggcggccttgacgccgagtagtgaata
 gccagaaggacatcctggaggaggaccgggcgtcgggtggacaccgtatgcagacacaactaccagttggagctccg
 5 cagaccttgacgcgcgagtgaggccacagtgacctctcccatccaggacagaggccctcaaccaccacaac
 ctgctggtctgctcagtgacagatttctatccagccagatcaaagtccggtggtttcggaatgaccaggaggaga
 caactggcgttgtgtccaccccccttattaggaacggtgactggaccttccagatcctggtgatgctggaaatgac
 tccccagcgtggagacgtctacacctgccacgtggagcaccacagcctccagaaccccatcatcgtggagtgg (SE
 Q ID NO:2182466)

10 DQB1*0402

gggcatgtgctacttcaccaacgggaccgagcgcgtgcggggtgtgaccagatacatctataaccgagaggagtag
 gcgcgcttcgacagcgacgtgggggtgtatcgggcggtgacgccgctggggcggcTtgacgccgagtagtgaata
 gccagaaggacatcctggaggaggaccgggcgtcgggtggacaccgtatgcagacacaactaccagttggagctccg
 cagaccttgacgcgcgagtgaggccacagtgacctctcccatccaggacagaggccctcaaccaccacaac
 15 ctgctggtctgctcagtgacagatttctatccagccagatcaaagtccggtggtttcggaatgaccaggaggaga
 caactggcgttgtgtccaccccccttattaggaacggtgactggaccttccagatcctggtgatgctggaaatgac
 tccccagcgtggagacgtctacacctgccacgtggagcaccacagcctccagaaccccatcatcgtggagtgg (SE
 Q ID NO:2192467)

DQB1*060101

ggccatgtgctacttcaccaaTgggacggagcgcgtgcgttatgtgaccagatacatctataaccgagaggaggac
 gtgcgcttcgacagcgacgtgggggtgtatcgggcggtgacgcccgaggggcggccttgacgccgagtagtgaaca
 gccagaaggacatcctggaggaggacccgagcggagtggacacggtgtgcagacacaactacgaggtggcgttccg
 cgggatcttgacaggagagtgaggccacagtgacctctcccatccaggacagaggccctcaaccaccacaac
 20 ctgctggtctgctcgggtgacagatttctatccagccagatcaaagtccggtggtttcggaatgaccaggaggaga
 cagctggcgttgtgtccaccccccttattaggaacggtgactggaccttccagatcctggtgatgctggaaatgac
 tccccagcatggagacgtctacacctgccacgtggagcaccacagcctccagagcccatcacctggagtgg (SE
 25 Q ID NO:2202468)

DQB1*060102

gccatgtgctacttcaccaacgggacggagcgcgtgcgttatgtgaccagatacatctataaccgagaggaggacg
 tgcgcttcgacagcgacgtgggggtgtatcgggcggtgac0ccgcagggcggcctgacgccgagtactggaacag
 ccagaaggacatcctggagaggacccgagcggagttggacacggtgtgcaga (SEQ ID NO:2242469)

5 DQB1*060103

ggccatgtgctacttcaccaatgggacggagcgcgtgcgttatgtgaccagatacatctataaccgagaggaggac
 gtgcgcttcgacagcgacgtgggggtgtatcgggcggtgacgccgcagggcggcctgacgccgagtactggaaca
 gccagaaggacatcctggagaggacccgagcggagttggacacggtgtgcagacacaactacgaggtggcggtccg
 cgggatccttgacagaggagagtgaggccacagtgaccatctcccatccaggacagaggccctcaaccaccacaac
 10 ctgctgggtctgctcggtgacagatttctatccaggccagatcaaagtccggtggtttcggaatgaccaggaAgaga
 cagctggcggttgtgtccaccccccttattaggaacggtgactggaccttcagatcctggtgatgctggaaatgac
 tccccagcatggagacgtctacacctgccacgtggagcaccacagcctccagagcccatcaccgtggagtgg (SE
 Q ID NO:2222470)

DQB1*0602

gggcatgtgctacttcaccaacgggacggagcgcgtgcgtctttgtgaccagaTaatctataaccgagaggagtac
 gcgcgcttcgacagcgacgtgggggtgtaccgcgcggtgacgccgcagggcggcctgatgccgagtactggaaca
 gccagaaggaagtctctggaggggacccggcgagttggacacggtgtgcagacacaactacgaggtggcggttccg
 cgggatcTtgacagaggagagtgaggccacagtgaccatctcccatccaggacagaggccctcaaccaccacaac
 ctgctgggtctgctcggtgacagatttctatccaggccagatcaaagtccggtggtttcggaatgatcaggaggaga
 20 cagccggcggttgtgtccaccccccttattaggaatggtgactggacTttccagatcctggtgatgctggaaatgac
 tccccagcgtggagatgtctacacctgccacgtggagcaccacagcctccagagcccatcaccgtggagtgg (SE
 Q ID NO:2232471)

DQB1*0603

gggcatgtgctacttcaccaacgggacggagcgcgtgcgtctttgtAaccagacacatctataaccgagaggagtac
 25 gcgcgcttcgacagcgacgtgggggtgtaccgcgcggtgacgccgcagggcggcctgatgccgagtactggaaca
 gccagaaggaagtctctggaggggacccggcgagttggacacggtgtgcagacacaactacgaggtggcggttccg
 cgggatcTtgacagaggagagtgaggccacagtgaccatctcccatccaggacagaggccctcaaccaccacaac

ctgctggtctgctcggtgacagatttctatccaggccagatcaaagtccggtggtttcggaatgatcaggaggaga
 cagccggcggttgtgtccaccccccttattaggaatggtgactggacTttccagatcctggtgatgctggaaatgac
 tccccagcgtggagatgtctacacctgccacgtggagcaccacagcctccagagcccatcaccgtggagtgg (SE
 Q ID NO: 2242472)

5 DQB1*060401

gggcatgtgctacttcaccaacgggacggagcgcgtgctcttgaaccagacacatctataaccgagaggagtac
 gcgcgcttcgacagcgacgtgggggtgtaccggcggtgacgccgcagggcggcctgttccgagtactggaaca
 gccagaaggaagtctctggagAggacccggcgagttggacacggtgtgcagacacaactacgaggtgggtaccg
 cgggatcctgcagaggagagtggagcccacagtgacctctccccatccaggacagaggccctcaaccaccacaac
 10 ctgctggtctgctcggtgacagatttctatccaggccagatcaaagtccAgtggtttcggaatgatcaggaggaga
 cagccggcggttgtgtccaccccccttattaggaatggtgactggactttccagatcctggtgatgctggaaatgac
 tccccagcgtggagatgtctacacctgccacgtggagcaccacagcctccagagcccatcaccgtggagtgg (SE
 Q ID NO: 2252473)

DQB1*060402

15 gggcatgtgctacttcaccaacgggacggagcgcgtgctcttgtAaccagacacatctataaccgagaggagtac
 gcgcgcttcgacagcgacgtgggggtgtaccgGcggtgacgccgcagggcggcctgttccgagtactggaaca
 gccagaaggaagtctctggagAggAccggggcgagttggacacggtgtgcagacacaactacgaggtggGgtaccg
 cgggatcctgcagaggagagtggagcccacagtgacctctccccatccaggacagaggcc (SEQ ID
 NO: 2262474)

20 DQB1*060501

gggcctgtgctacttcaccaacgggacggagcgcgtgctcttgtAaccagaTaatctataaccgagaggagtac
 gcgcgcttcgacagcgacgtgggggtgtaccggcggtgacgccgcagggcggcctgttccgagtactggaaca
 gccagaaggaagtctctggagAggAccggggcgagttggacacggtgtgcagacacaactacgaggtggGgtaccg
 cgggatcctgcagaggagagtggagcccacagtgacctctccccatccaggacagaggcc (SEQ ID

25 NO: 2272475)

DQB1*060502

ggacggagcgcgtgctcttgtAaccagatacatctataaccgagaggagtacgcgcgcttcgacagcgacgtggg

gggtgtaccggcggtgacgccgcagggcggcctgtGgccgagtactggaacagccagaaggaagtccctggagAgg
 AcccggcgaggattggacaGg (SEQ ID NO:2282476)

DQB1*0606

ggacggagcgcgtgctcttgtAaccagaTatatctataaccgagaggagtacgcgcgttcgacagcgacgtggg
 5 ggtgtaccggcggtgacgccgcagggcggcctgttgcgagtactggaacagccagaaggaagtccctggagAgg
 Acccggcgcggtggacagggtg (SEQ ID NO:2292477)

DQB1*0607

gggcatgtgctacttcaccaacgggacggagcgcgtgctcttgtAaccagacacatctataaccgagaggagtac
 gcgcgcttcgacagcgacgtgggggtgtaccgcgcgtgacgccgcagggcggcctgAtgccgagtactggaaca
 10 gccagaaggaagtccctggagAggAcccggcgaggattggacacggtgtgcagacacaactacgaggtggGgtaccg
 cgggatcc (SEQ ID NO:2302478)

DQB1*0608

gggcatgtgctacttcaccaacgggacggagcgcgtgctcttgtAaccagacacatctataaccgagaggagtac
 gcgcgcttcgacagcgacgtgggggtgtaccgGcggtgacgccgcagggcggcctgttgcgagtactggaaca
 15 gccagaaggaagtccctggaggggacccggcgagttggacacggtgtgcagacacaactacgaggtggcggtccg
 cgggatcT (SEQ ID NO:2312479)

DQB1*0609

gggcatgtgctacttcaccaacgggacggagcgcgtgctcttgtAaccagaTatatctataaccgagaggagtac
 gcgcgcttcgacagcgacgtgggggtgtaccggcggtgacgccgcagggcggcctgttgcgagtactggaaca
 20 gccagaaggaagtccctggagAggacccggcgagttggacacggtgtgcagacacaactacgaggtggggtaccg
 cgggatccctgcagaggagagtggagcccacagtgaccatctcccatccaggacagaggccctcaaccaccacaac
 ctgctggtctgctcgggtgacagatttctatccaggccagatcaaagtccAgtggtttcggaatgatcaggaggaga
 cagccggcgttgtgtccaccccccttattaggaatggtgactggactttccagatccctggtgatgtgaaatgac
 tcccagcgtggagatgtctacacctgccacgtggagcaccagcctccagagcccatcacctggagtg (SE
 25 Q ID NO:2322480)

DQB1*0610

gggcatgtgctacttcaccaacgggacggagcgcgtgctcttgtgaccagatacatctataaccgagaggagtac

gcgcgcttcgacagcgacgtgggggtgtaccgcgcggtgacgccgcagggcggcctaGcgcgagtagtgaaca
gccagaaggaagtccctggaggggacccggcgagttggacacggtgtgcagacacaactacgaggtggcggtccg
cgggatcTtgacagaggag (SEQ ID NO: 2332481)

DQB1*061101

5 gggcatgtgctacttcaccaacgggacggagcgcgtgcgtctttgtgaccagaTaatctataaccgagaggagtag
gcgcgcttcgacagcgacgtgggggtgtaccgGgcggtgacgccgcagggcggcctgAtgccgagtagtgaaca
gccagaaggaagtccctggaggggacccggcgagttggacacggtgtgcagacacaactacgaggtggcggtccg
cgggatcTtgacagg (SEQ ID NO: 2342482)

DQB1*061102

10 gggcatgtgctacttcaccaacgggacggagcgcgtgcgtctttgtAaccagaTaatctataaccgagaggagtag
gcgcgcttcgacagcgacgtgggggtgtaccgGgcggtgacgccgcagggcggcctgAtgccgagtagtgaaca
gccagaaggaagtccctggaggggacccggcgagttggacacggtgtgcagacacaactacgaggtggcggtccg
cgggatcTtgacaggagag (SEQ ID NO: 2352483)

DQB1*0612

15 gggcatgtgctacttcaccaacgggacggagcgcgtgcgtctttgtAaccagaTaatctataaccgagaggagtag
gcgcgcttcgacagcgacgtgggggtgtaccggcggtgacgccgcagggcggcctgtttgccgagtagtgaaca
gccagaaggaagtccctggaggggacccggcgagttggacacggtgtgcagacacaactacgaggtggggtagcg
cgggatcctgcagaggagagtgaggccacagtgacctctcccatccaggacagaggccctcaaccaccacaac
ctgctgggtctgctcggtagagatttctatccaggccagatcaaagtccAgtggtttcggaatgatcaggaggaga
20 cagccggcggttgtgtccaccccccttattaggaatggtgactggactttccagatcctggtgatgctggaaatgac
tcccagcgtggagatgtctacacctgccacgtggagcaccacagcctccagagcccatcaccgtggagtgg (SE
Q ID NO: 2362484)

DQB1*0613

gggcatgtgctacttcaccaacgggacggagcgcgtgcgtctttgtgaccagaTaatctataaccgagaggagtag
25 gcgcgcttcgacagcgacgtgggggtgtaccgGgcggtgacgccgcagggcggcctgtttgccgagtagtgaaca
gccagaaggaagtccctggaggggacccggcgagttggacacggtgtgcagacacaactacgaggtggcggtTccg
cgggat (SEQ ID NO: 2372485)

DQB1*0614

gggcatgtgctacttcaccaacgggacggagcgcgtgcgtcttgtAaccagacacatctataaccgagaggagtag
 gcgcgcttcgacagcgacgtgggggtgtaccgGcggtgacgccgcagggcggcctgAtgccgagtactggaaca
 gccagaaggaagtctctggaggggacccgggaggagttggacacggtgtgcagacacaactacgaggtggcggtccg
 5 cgggatcTtgcagaggagag (SEQ ID NO:2382486)

DQB1*0615

gggcatgtgctacttcaccaacgggacggagcgcgtgcgtcttgtgaccagaTaatctataaccgagaggagtag
 gcgcgcttcgacagcgacgtgggggtgtaccgcgcgtgacgccgcagggcggcctgAtgccgagtactggaaca
 gccagaaggaagtctctggagAggAaccgggaggagttggacacggtgtgcagacacaactacgaggtggGgtaccg
 10 cgggatcctgcagaggagag (SEQ ID NO:2392487)

DQB1*0616

gggcatgtgctacttcaccaacgggacggagcgcgtgcgtcttgtgaccagatacatctataaccgagaggagtag
 gcgcgcttcgacagcgacgtgggggtgtaccgcgcgtgacgccgcagggcggcctgatgccgagAactggaaca
 gccagaaggaagtctctggaggggacccgggaggagttggacacggtgtgcagacacaactacgaggtggcggtccg
 15 cgggatccttgcagaggagag (SEQ ID NO:2402488)

DQB1*0617

gggcatgtgctacttcaccaacgggacggagcgcgtgcgtcttgtAaccagacacatctataaccgagaggagtag
 gcgcgcttcgacagcgacgtgggggtgtaccggcggtgacgccgcagggcggcctgttgcgagtactggaaca
 gccagaaggaagtctctggagggggcccgggaggagttggacacggtgtgcagacacaactacgaggtggGgtaccg
 20 c (SEQ ID NO:2412489)

DQB1*0618

gggcatgtgctacttcaccaacgggacggagcgcgtgcgtcttgtAaccagatacatctataaccgagaggagtag
 gcgcgcttcgacagcgacgtgggggtgtaccggcggtgacgccgcagggcggcctgttgcgagtactggaaca
 gccagaaggaagtctctggagAggacccgggaggagttggacacggtgtgcagacacaactacgaggtggcggtccg
 25 cgggatcTtgcagaggag (SEQ ID NO:2422490)

DQB1*0619

gggcatgtgctacttcaccaacgggacggagcgcgtgcgtcTtgtgaccagatacatctataaccgagaggagtag

gcgcgcttcgacagcgacgtgggggtgtaTcgggcggtgacgccgcTggggcggcctgAtgccgagtactggaaca
 gccagaaggaagtcctggaggggacccgggaggagTtgacacggtgtgcagacacaactacgaggtggcggtccg
 cgggatcTtgacaggagag (SEQ ID NO: 2432491)

DQB1*0620

5 gggcctgtgctacttcaccaacgggacggagcgcggtcggtcttgtgaccagaTaatctataaccgagaggagtag
 gcgcgcttcgacagcgacgtgggggtgtaccgGcggtgacgccgcagggcggcctgAtgccgagtactggaaca
 gccagaaggaagtcctggaggggacccgggaggagttggacacggtgtgcagacacaactacgaggtggcgTccg
 c (SEQ ID NO: 2442492)

10 In the following, Probe Lists DQ1 and DQ2 are
 shown in Tables 17A, 17B-1 and 17B-2 and tables 18A,
 18B-1 and 18B-2 respectively. Tables 19A, 19B-1 and
 19B-2 and Tables 20A, 20B-1 and 20B-2 show Allele-
 Prove Lists.

15

Table 17A

Probe No.		Base Sequence
0	t gaa ttt gat gga gat gag G	(SEQ ID No: 1 2249)
1	ggt gct tcc aga cac caG	(SEQ ID No: 2 2250)
2	gg ttg tct gtg ggc ctc A	(SEQ ID No: 3 2251)
3	cag ccc aac acc ctc atC	(SEQ ID No: 4 2252)
4	g ctg agc aat ggg cac G	(SEQ ID No: 5 2253)
5	ca gag act gtg gtc tgc A	(SEQ ID No: 6 2254)
6	c cct tgt gga ggt gaa gG	(SEQ ID No: 7 2255)
7	cct gtg gtc aac atc acC	(SEQ ID No: 8 2256)
8	ccc tgt gga ggt gaa gG	(SEQ ID No: 9 2257)
9	c ctg gag agg aag gag G	(SEQ ID No: 10 2258)
10	tg cct ctg ttc cac aga C	(SEQ ID No: 11 2259)
11	x ag cct gag att cca A	(SEQ ID No: 12 2260)
12	gcc ctg acc acc gtg aC	(SEQ ID No: 13 2261)
13	c acc ttc ctc cct tct gA	(SEQ ID No: 14 2262)
14	tt aaa cgc tcc aac tct acT	(SEQ ID No: 15 2263)
15	cc aga cac caa ggg ccC	(SEQ ID No: 16 2264)
16	ca gtg ttt tcc aag tct ccT	(SEQ ID No: 17 2265)
17	g cac tgg ggc ctg gac A	(SEQ ID No: 18 2266)
18	g gtc tgc gcc ctg ggA	(SEQ ID No: 19 2267)
19	ct gac cac gtt gcc tct tA	(SEQ ID No: 20 2268)
20	c cta aaa cat aac ttg aac agT	(SEQ ID No: 21 2269)
21	c aga caa ttt aga ttt gac cG	(SEQ ID No: 22 2270)
22	tc acc ctc ctc cct tct T	(SEQ ID No: 23 2271)
23	tg tac cag tct tac ggt cT	(SEQ ID No: 24 2272)
24	ag gtg gag cac tgg ggA	(SEQ ID No: 25 2273)
25	ggt ccc tct ggc cag tT	(SEQ ID No: 26 2274)
26	cc aag tct ccc gtg acG	(SEQ ID No: 27 2275)
27	gca ctg aca aac atc gcC	(SEQ ID No: 28 2276)

Table 17B-1

Probe No.	Base Sequence
0	g ggg gtg tac cgg gcA (SEQ ID No: 29 <u>2277</u>)
1	cg cag ggg cgg cct gT (SEQ ID No: 30 <u>2278</u>)
2	ag ggg gcc cgg gcg T (SEQ ID No: 31 <u>2279</u>)
3	gg gcg tcg gtg gac aG (SEQ ID No: 32 <u>2280</u>)
4	gg gcg tcg gtg gac agA (SEQ ID No: 33 <u>2281</u>)
5	ca gat ttc tat cca agc caC (SEQ ID No: 34 <u>2282</u>)
6	gc gac gtg ggg gtg taT (SEQ ID No: 35 <u>2283</u>)
7	cg cag ggg cgg cct aG (SEQ ID No: 36 <u>2284</u>)
8	g cag ggg cgg cct agC (SEQ ID No: 37 <u>2285</u>)
9	cg cag ggg cgg cct gA (SEQ ID No: 38 <u>2286</u>)
10	g cag ggg cgg cct gaC (SEQ ID No: 39 <u>2287</u>)
11	g aag gac atc ctg gag gA (SEQ ID No: 40 <u>2288</u>)
12	g gac atc ctg gag agg aaA (SEQ ID No: 41 <u>2289</u>)
13	ct ccc cag cgt gga gaC (SEQ ID No: 42 <u>2290</u>)
14	c cgg tgg ttt cgg aat gG (SEQ ID No: 43 <u>2291</u>)
15	ctg ctg ggg ctg cct gA (SEQ ID No: 44 <u>2292</u>)
16	c ttc gac agc gac gtg gA (SEQ ID No: 45 <u>2293</u>)
17	cg ctg ggg ccg cct gA (SEQ ID No: 46 <u>2294</u>)
18	ct ccc cag cat gga gaC (SEQ ID No: 47 <u>2295</u>)
19	cac ccc agc ctc cag aA (SEQ ID No: 48 <u>2296</u>)
20	aac cga gag gag tac gcA (SEQ ID No: 49 <u>2297</u>)
21	g ctg ggg ccg cct gC (SEQ ID No: 50 <u>2298</u>)
22	agg acc cgg gcg gag T (SEQ ID No: 51 <u>2299</u>)
23	c ctc cag aac ccc atc aT (SEQ ID No: 52 <u>2300</u>)
24	cg gag cgc gtg cgt cT (SEQ ID No: 53 <u>2301</u>)
25	g acg ccg ctg ggg cC (SEQ ID No: 54 <u>2302</u>)
26	cag aag gaa gtc ctg gag A (SEQ ID No: 55 <u>2303</u>)
27	tac ttc acc aac ggg acC (SEQ ID No: 56 <u>2304</u>)

Table 17B-2

Probe No.	Base Sequence
28	cgg gcg gag ttg gac aC (SEQ ID No: 57 <u>2305</u>)
29	cg tcg gtg gac acc gtA (SEQ ID No: 58 <u>2306</u>)
30	gtg ggg gtg tat cgg gT (SEQ ID No: 59 <u>2307</u>)
31	tg act ccc cag cat gcC (SEQ ID No: 60 <u>2308</u>)
32	g gaa atg act ccc cag cA (SEQ ID No: 61 <u>2309</u>)
33	gg aac agc cag aag gaa gA (SEQ ID No: 62 <u>2310</u>)
34	acc aac ggg acc gag cT (SEQ ID No: 63 <u>2311</u>)
35	g ccg ctg ggg cgg cT (SEQ ID No: 64 <u>2312</u>)
36	cc atg tgc tac ttc acc aaT (SEQ ID No: 65 <u>2313</u>)
37	tg tat cgg gcg gtg acC (SEQ ID No: 66 <u>2314</u>)
38	g ttt cgg aat gac cag gaA (SEQ ID No: 67 <u>2315</u>)
39	gtg cgt ctt gtg acc aga T (SEQ ID No: 68 <u>2316</u>)
40	g gcg ttc cgc ggg atc T (SEQ ID No: 69 <u>2317</u>)
41	t agg aat ggt gac tgg acT (SEQ ID No: 70 <u>2318</u>)
42	gag cgc gtg cgt ctt gtA (SEQ ID No: 71 <u>2319</u>)
43	ca ggc cag atc aaa gtc cA (SEQ ID No: 72 <u>2320</u>)
44	c gtg ggg gtg tac cgC (SEQ ID No: 73 <u>2321</u>)
45	ag gaa gtc ctg gag agg A (SEQ ID No: 74 <u>2322</u>)
46	a cac aac tac gag gtg gG (SEQ ID No: 75 <u>2323</u>)
47	gtg cgt ctt gta acc aga T (SEQ ID No: 76 <u>2324</u>)
48	g cag ggg cgg cct gtC (SEQ ID No: 77 <u>2325</u>)
49	c aac tac gag gtg gcg tT (SEQ ID No: 78 <u>2326</u>)
50	g cgg cct gat gcc gag A (SEQ ID No: 79 <u>2327</u>)
51	gg gcg gtg acg ccg cT (SEQ ID No: 80 <u>2328</u>)
52	cg ctg ggg cgg cct gA (SEQ ID No: 81 <u>2329</u>)
53	ggg acc cgg gcg gag T (SEQ ID No: 82 <u>2330</u>)

Table 18A

Probe No.	Base Sequence
0	gga gat gag Gag ttc tac g (SEQ ID No: 83 <u>2331</u>)
1	c aga cac caG ggg cca tt (SEQ ID No: 84 <u>2332</u>)
2	gtg ggc ctc Atg ggc att (SEQ ID No: 85 <u>2333</u>)
3	c acc ctc atC tgt ctt gtg (SEQ ID No: 86 <u>2334</u>)
4	aat ggg cac Gca gtc aca (SEQ ID No: 87 <u>2335</u>)
5	g gtc tgc Acc ctg ggg (SEQ ID No: 88 <u>2336</u>)
6	ga ggt gaa gGc att gtg g (SEQ ID No: 89 <u>2337</u>)
7	c aac atc acC tgg ctg ag (SEQ ID No: 90 <u>2338</u>)
8	gg aag gag Gct gcc tgg (SEQ ID No: 91 <u>2339</u>)
9	ctg ttc cac aga Ctt aga c c ttt (SEQ ID No: 92 <u>2340</u>)
10	gag att cca Aca cct atg tc (SEQ ID No: 93 <u>2341</u>)
11	c acc gtg aCg agc cct t (SEQ ID No: 94 <u>2342</u>)
12	ctc cct tct gAt gat gag at (SEQ ID No: 95 <u>2343</u>)
13	c aac tct acT gct gct acc (SEQ ID No: 96 <u>2344</u>)
14	c atc atc cGa ggc ctg c (SEQ ID No: 97 <u>2345</u>)
15	c aag tct ccT gtg acg ct (SEQ ID No: 98 <u>2346</u>)
16	ggc ctg gac Aag cct ctt (SEQ ID No: 99 <u>2347</u>)
17	c gcc ctg ggA ttg tct gt (SEQ ID No: 100 <u>2348</u>)
18	gtt gcc tct tAt ggt gta aa (SEQ ID No: 101 <u>2349</u>)
19	aac ttg aac agT ctg att aaa c (SEQ ID No: 102 <u>2350</u>)
20	a cg ttt gac cGg caa ttt gca c (SEQ ID No: 103 <u>2351</u>)
21	ctc cct tct Tct gag gag (SEQ ID No: 104 <u>2352</u>)
22	ct tac ggt cTc tct ggc c (SEQ ID No: 105 <u>2353</u>)
23	g cac tgg ggA ctg gac aa (SEQ ID No: 106 <u>2354</u>)
24	ct ggc cag tTc acc cat g (SEQ ID No: 107 <u>2355</u>)
25	ccc gtg acG ctg ggt c (SEQ ID No: 108 <u>2356</u>)
26	ca aac atc gcC gtg aca aaa (SEQ ID No: 109 <u>2357</u>)

Table 18B-1

Probe No.	Base Sequence
0	tac cgg gcA gtg acg cc (SEQ ID No: 110 2358)
1	g cgg cct gTt gcc gag (SEQ ID No: 111 2359)
2	c cgg gcg Tcg gtg gac (SEQ ID No: 112 2360)
3	g gtg gac aGg gtg tgc a (SEQ ID No: 113 2361)
4	g gtg gac agA gtg tgc ag (SEQ ID No: 114 2362)
5	t cca agc caC atc aaa gtc (SEQ ID No: 115 2363)
6	ggg gtg taT cgg gcg g (SEQ ID No: 116 2364)
7	g cgg cct aGc gcc gag (SEQ ID No: 117 2365)
8	cgg cct agC gcc gag t (SEQ ID No: 118 2366)
9	g cgg cct gAc gcc gag (SEQ ID No: 119 2367)
10	cgg cct gaC gcc gag t (SEQ ID No: 120 2368)
11	g cgg cct gAt gcc gag (SEQ ID No: 121 2369)
12	c ctg gag gAg gac cgg (SEQ ID No: 122 2370)
13	gag agg aaA cgg gcg gc (SEQ ID No: 123 2371)
14	g cgt gga gaC gtc tac ac (SEQ ID No: 124 2372)
15	t cgg aat gGc cag gag g (SEQ ID No: 125 2373)
16	g ctg cct gAc gcc gag (SEQ ID No: 126 2374)
17	c gac gtg gAg gtg tac c (SEQ ID No: 127 2375)
18	g ccg cct gAc gcc gag (SEQ ID No: 128 2376)
19	g cat gga gaC gtc tac ac (SEQ ID No: 129 2377)
20	gc ctc cag aAc ccc atc a (SEQ ID No: 130 2378)
21	g gag tac gcA cgc ttc ga (SEQ ID No: 131 2379)
22	ccg cct gCc gcc gag (SEQ ID No: 132 2380)
23	gg gcg gag Ttg gac acg (SEQ ID No: 133 2381)
24	ac ccc atc aTc gtg gag t (SEQ ID No: 134 2382)
25	gc gtg cgt cTt gtg acc a (SEQ ID No: 135 2383)
26	g ctg ggg cCg cct gac (SEQ ID No: 136 2384)
27	c ctg gag Agg acc cgg (SEQ ID No: 137 2385)

Table 18B-2

Probe No.	Base Sequence
28	aac ggg acC gag cgc g (SEQ ID No: 138 <u>2386</u>)
29	ag ttg gac aCg gtg tgc a (SEQ ID No: 139 <u>2387</u>)
30	g gac acc gtA tgc aga ca (SEQ ID No: 140 <u>2388</u>)
31	g tat cgg gTg gtg acg c (SEQ ID No: 141 <u>2389</u>)
32	cc cag cat gcC g t gtc tac (SEQ ID No: 142 <u>2390</u>)
33	t ccc cag cAt gga gac g (SEQ ID No: 143 <u>2391</u>)
34	ag aag gaa gAc ctg gag ag (SEQ ID No: 144 <u>2392</u>)
35	g acc gag cTc gtg cgg (SEQ ID No: 145 <u>2393</u>)
36	g ggg cgg cTt gac gcc (SEQ ID No: 146 <u>2394</u>)
37	c ttc acc aaT ggg acg ga (SEQ ID No: 147 <u>2395</u>)
38	gcg gtg acC ccg cag g (SEQ ID No: 148 <u>2396</u>)
39	t gac cag gaA gag aca gc (SEQ ID No: 149 <u>2397</u>)
40	t gtg acc aga Tac atc tat aa (SEQ ID No: 150 <u>2398</u>)
41	gc ggg atc Ttg cag agg (SEQ ID No: 151 <u>2399</u>)
42	t gac tgg acT ttc cag atc (SEQ ID No: 152 <u>2400</u>)
43	g cgt ctt gtA acc aga cac (SEQ ID No: 153 <u>2401</u>)
44	tc aaa gtc cAg tgg ttt cg (SEQ ID No: 154 <u>2402</u>)
45	gtg tac cgC gcg gtg ac (SEQ ID No: 155 <u>2403</u>)
46	g gag agg Acc cgg gcg (SEQ ID No: 156 <u>2404</u>)
47	c gag gtg gGg tac cgc (SEQ ID No: 157 <u>2405</u>)
48	g cgt ctt gtA acc aga tac (SEQ ID No: 158 <u>2406</u>)
49	t gta acc aga Tac atc tat aac (SEQ ID No: 159 <u>2407</u>)
50	cgg cct gtC gcc gag t (SEQ ID No: 160 <u>2408</u>)
51	c cgg gcg gAg ttg gac (SEQ ID No: 161 <u>2409</u>)
52	g gtg gcg tTc cgc ggg (SEQ ID No: 162 <u>2410</u>)
53	gat gcc gag Aac tgg aac (SEQ ID No: 163 <u>2411</u>)
54	acg ccg cTg ggg cgg (SEQ ID No: 164 <u>2412</u>)

Table 19A

Allele Number	Probe Number for Detection		
DQA1*010101	0		
DQA1*010102	1		
DQA1*010201	2		
DQA1*010202	3	2	
DQA1*0103	4		
DQA1*010401	5		
DQA1*010402	6	7	
DQA1*0105	8		
DQA1*0106	9		
DQA1*0201	10		
DQA1*030101	11		
DQA1*0302	12		
DQA1*0303	13		
DQA1*040101	14	15	
DQA1*040102	16		
DQA1*050101	17	18	
DQA1*050102	19	20	
DQA1*0502	21		
DQA1*0503	22		
DQA1*0504	23		
DQA1*0505	24		
DQA1*060101	25	26	15
DQA1*060102	27		

Table 19B-1

Allele Number	Probe Number for Detection					
DQB1*050101	0	1	2	3		
DQB1*050102	4					
DQB1*050201	5					
DQB1*050202	6	7	8	4		
DQB1*050301	9	10	4			
DQB1*050302	6	11				
DQB1*0504	7	12				
DQB1*0201	13	14				
DQB1*0202	15	14				
DQB1*0203	16	15				
DQB1*030101	17	18	19	20		
DQB1*030102	17	18				
DQB1*0302	21	22	23	24		
DQB1*030302	18	23	24			
DQB1*030303	25	6	26	18	27	23
DQB1*0304	17	22	19	20		
DQB1*030501	28	23				
DQB1*030502	6	22	27	29		
DQB1*0306	26	30				
DQB1*0307	31					
DQB1*0308	21	6	22	29		
DQB1*0309	32					
DQB1*0310	6	18	33	19	20	
DQB1*0311	21	6	22	27	29	
DQB1*0312	25	21	6	18	27	23
DQB1*0313	34					
DQB1*0401	35					
DQB1*0402	36					
DQB1*060101	37					
DQB1*060102	38					
DQB1*060103	39					
DQB1*0602	40	41	42			
DQB1*0603	43	41	42			

Table 19B-2

Allele Number	Probe Number for Detection					
DQB1*060401	27	44				
DQB1*060402	43	45	27	46	47	
DQB1*060501	48	49	27	46	47	
DQB1*060502	48	50	27	46	51	
DQB1*0606	48	49	27	46		
DQB1*0607	43	11	27	46	47	
DQB1*0608	43	45	52			
DQB1*0609	49	27	44			
DQB1*0610	7	41				
DQB1*061101	40	45	11	52		
DQB1*061102	48	49	45	11	41	
DQB1*0612	49	44				
DQB1*0613	40	45	52			
DQB1*0614	43	45	11	41		
DQB1*0615	40	11	27	46	47	
DQB1*0616	53					
DQB1*0617	43	29				
DQB1*0618	48	27	41			
DQB1*0619	25	6	54	11	23	41
DQB1*0620	40	45	11			

Table 20A

Allele Number	Probe Number for Detection		
DQA1*010101	0		
DQA1*010102	1		
DQA1*010201	2		
DQA1*010202	3	2	
DQA1*0103	4		
DQA1*010401	5		
DQA1*010402	6	7	
DQA1*0105	6		
DQA1*0106	8		
DQA1*0201	9		
DQA1*030101	10		
DQA1*0302	11		
DQA1*0303	12		
DQA1*040101	13	14	
DQA1*040102	15		
DQA1*050101	16	17	
DQA1*050102	18	19	
DQA1*0502	20		
DQA1*0503	21		
DQA1*0504	22		
DQA1*0505	23		
DQA1*060101	24	25	14
DQA1*060102	26		

Table 20B-1

Allele Number	Probe Number for Detection					
DQB1*050101	0	1	2	3		
DQB1*050102	4					
DQB1*050201	5					
DQB1*050202	6	7	8	4		
DQB1*050301	9	10	4			
DQB1*050302	6	11				
DQB1*0504	7	12				
DQB1*0201	13	14				
DQB1*0202	15	14				
DQB1*0203	16	15				
DQB1*030101	17	18	19	20		
DQB1*030102	17	18				
DQB1*0302	21	22	23	24		
DQB1*030302	18	23	24			
DQB1*030303	25	6	26	18	27	23
DQB1*0304	17	22	19	20		
DQB1*030501	28	23				
DQB1*030502	6	22	27	29		
DQB1*0306	26	30				
DQB1*0307	31					
DQB1*0308	21	6	22	29		
DQB1*0309	32					
DQB1*0310	6	18	33	19	20	
DQB1*0311	21	6	22	27	29	
DQB1*0312	25	21	6	18	27	23
DQB1*0313	34					
DQB1*0401	35					
DQB1*0402	36					
DQB1*060101	37					
DQB1*060102	38					
DQB1*060103	39					
DQB1*0602	40	41	42			
DQB1*0603	43	41	42			

Table 20B-2

Allele Number	Probe Number for Detection					
DQB1*060401	27	44				
DQB1*060402	43	45	27	46	47	
DQB1*060501	48	49	27	46	47	
DQB1*060502	48	50	27	46	51	
DQB1*0606	48	49	27	46		
DQB1*0607	43	11	27	46	47	
DQB1*0608	43	45	52			
DQB1*0609	49	27	44			
DQB1*0610	7	41				
DQB1*061101	40	45	11	52		
DQB1*061102	48	49	45	11	41	
DQB1*0612	49	44				
DQB1*0613	40	45	52			
DQB1*0614	43	45	11	41		
DQB1*0615	40	11	27	46	47	
DQB1*0616	53					
DQB1*0617	43	29				
DQB1*0618	48	27	41			
DQB1*0619	25	6	54	11	23	41
DQB1*0620	40	45	11			

(Example 11)

Probes for identification of HLA-DR allele

Extraction of DNA from 1 ml of human blood was performed using GFX Genomic Blood DNA Purification
 5 Kit from Amersham Biosciences in the same manner as in Example 1.

Next, quantitative PCR was carried out in the same manner as in Example 1 except that probes in the probe list 1 in Tables 21-1 and 21-2 were used and 4
 10 μ l of the mixed primers consisting of 1 μ l each of respective solutions of the following primers (10 pmol/ μ l) and 4 μ l of ultra pure water were used:

AGAGTACTCCAAGAAACGTG (SEQ ID NO: ~~822~~3314)
 CCGCTGCACCGTGAAGCT (SEQ ID NO: ~~823~~3315)
 15 TCGCTGCACTGTGAAGCT (SEQ ID NO: ~~824~~3316)
 CCTCTGCACTGTGAAGCT (SEQ ID NO: ~~825~~3317).

Referring to Amp Plot and Dissociation curves on a display of 5700 software, it was found that probes 62, 12, and 152 were amplified. Therefore, it
 20 was identified as DRB1*040502 and DRB1*130202 referring to the allele-probe list 1 (Tables 23-1 to 23-13).

(Example 12)

Extraction of DNA from 1 ml of human blood was
 25 performed in the same way as in Example 3. PCR of human HLA-DRB exon 2 was then performed in the same manner as in Example 2 except that 6 μ l of the mixed

primer consisting of 1 μ l each of the solutions containing the following sequences at 10 pmol/ μ l respectively, and 9 μ l of ultra pure water were used:

CCGGATCCTTCGTGTCCCCACAGCACG (SEQ ID NO: ~~826~~3318)

5 AACCCCGTAGTTGTGTCTGCA (SEQ ID NO: ~~827~~3319)

AGAGTACTCCAAGAAACGTG (SEQ ID NO: ~~822~~3314)

CCGCTGCACCGTGAAGCT (SEQ ID NO: ~~823~~3315)

TCGCTGCACTGTGAAGCT (SEQ ID NO: ~~824~~3316)

CCTCTGCACTGTGAAGCT (SEQ ID NO: ~~825~~3317).

10 At the same time, a DNA microarray was prepared to identify the allele in the specimen described above in the same manner as in Example 2, except that probes in the probe list of Tables 22-1 to 22-7 were used to form the probe spots respectively.

15 Then, hybridization was performed using the above specimen and the prepared DNA microarray in the same manner as in Example 2. The fluorometry measurement was conducted with GenePix4000B (Axon).

As a result it was found that probes 59, 133,
20 and 134 were amplified. Therefore, it was identified as DRB1*040502 and DRB1*130202 referring to the allele-probe list 1 (Tables 24-1 to 24-13).

Allele list

25 DRB1*010101 :

atgggtgtgtctgaagctccctggaggctcctgcatgacagcgctgacagtgacactgatgggtgctgagctcccccac
tggcctttggctggggacacccgaccacgtttcttggcagcttaagtttgaatgtcattttcttcaatgggacgga

gcgggtgcggttgctggaAgaTgcctctataaccaagaggagtCcggtgcgcttcgacagcgacgtgggggagtag
 cgggcggtgacggagctggggcggcctgaTgcCgagtactggaacagccagaaggacctcctggagcagaggcggg
 ccgcggtggacacctactgcagacacaactacggggttgGtgagagcttcacagtgcagcggcgag (SEQ ID
 NO: ~~1~~2493) ;

5 DRB1*010102 :

cacgtttcttggtgcagcttaagtttgaatgtcatttcttcaatgggacggagcggtgctggttgctggaagatg
 catctataaccaagaggaAtccgtgcgcttcgacagcgacgtgggggagtagccggcggtgacggagctggggcg
 cctgatgccgagtactggaacagccagaaggacctcctggagcagaggcgggccggtggacacctactgcagac
 acaactacggggttggtgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~2~~2494) ;

10 DRB1*010201 :

ggggacacccgaccacgtttcttggtgcagcttaagtttgaatgtcatttcttcaatgggacggagcggtgctggt
 tgctggaagatgcatctataaccaagaggagtccgtgcgcttcgacagcgacgtgggggagtagccggcggtgac
 ggagctggggcggcctgatgccgagtactggaacagccagaaggacctcctggagcagaggcgggccggtggac
 acctaTgcagacacaactacggggGtggtgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~3~~2495) ;

15 DRB1*010202 :

cacgtttcttggtgcagcttaagtttgaatgtcatttcttcaatgggacggagcggtgctggttgctggaagatg
 catctataaccaagaggagtccgtgcgcttcgacagcgacgtgggggagtagccggcggtgacggagctggggcg
 cctgatgccgagtactggaacagccagaaggacctcctggagcagaggcgggccgcGgtggacacctattgcagac
 acaactacggggctgtgg (SEQ ID NO: ~~4~~2496) ;

20 DRB1*0103 :

atggtgtgtctgaagctccctggaggctcctgcatgacagcgctgacagtgacactgatggtgctgagctccccac
 tggctttggctggggacacccgaccacgtttcttggtgcagcttaagtttgaatgtcatttcttcaatgggacgga
 gcgggtgcggttgctggaagatgcatctataaccaagaggagtccgtgcgcttcgacagcgacgtgggggagtag
 cgggcggtgacggagctggggcggcctgatgccgagtactggaacagccagaaggacAtcctggaagacGAgcggg

25 ccgcggtggacacctactgcagacacaactacggggttggtgagagcttcacagtgcagcggcgag (SEQ ID
 NO: ~~5~~2497) ;

DRB1*0104 :

ggggacacccgaccacgtttcttgtggcagcttaagtttgaatgtcatttcttcaatgggacggagcgggtgcggt
tgctggaaagatgcatctataaccaagaggagtccgtgcgcttcgacagcgacgtgggggagtaccgggcggtgac
ggagctggggcgccctgatgccgagtactggaacagccagaaggacctcctggagcagaggcggccgcggtggac
aaTtactgcagacacaactacggggttgTgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~6~~2498) ;

5 DRB1*0105 :

cacgtttcttgtggcagcttaagtttgaatgtcatttcttcaatgggacggagcgggtgcggttgctggaaagatg
catctataaccaagaggagtccgtgcgcttcgacagcgacgtgAgggagtaccgggcggtgacggagctggggcgg
cctgatgccgagtactggaacagccagaaggacctcctggagcagaggcggccgcggtggacacctactgcagac
acaactacggggttgTgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~7~~2499) ;

10 DRB1*0106 :

cacgtttcttgtggcagcttaagtttgaatgtcatttcttcaatgggacggagcgggtgcggttgctggaaagatg
catctataaccaagaggagtccgtgcgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcgg
cctgatgccgagtactggaacagccagaaggacctcctggagcaggGcgggccgcggtggacacctactgcagac
acaactacggggttgTgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~8~~2500) ;

15 DRB1*0107 :

cacgtttcttgtggGagcttaagtttgaatgtcatttcttcaatgggacggagcgggtgcggttgctggaaagatg
catctataaccaagaggagtccgtgcgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcgg
cctgatgccgagtactggaacagccagaaggacctcctggagcagaggcggccgcggtggacacctactgcagac
acaactacggggttgTgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~9~~2501) ;

20 DRB1*0108 :

cacgtttcttgtggcagcttaagtttgaatgtcatttcttcaatgggacggagcgggtgcggttgctggaaagatg
catctataaccaagaggagtAcgtgcgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcgg
cctgatgccgagtactggaacagccagaaggacctcctggagcagaggcggccgcggtggacacctactgcagac
acaactacggggttgTgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~10~~2502) ;

25 DRB1*0109 :

cacgtttcttgtggcagcttaagtttgaatgtcatttcttcaatgggacggagcgggtgcggttgctggaaagatg
catctataaccaagaggagtccgtgcgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcgg

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DRB1*0110 :

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cctgatgccgagtactggaacagccagaaggacctcctggagcagaAgcggggccggtggacacctactgcagac
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DRB1*030101 :

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ggagctggggcggcctgatgccgagtactggaacagccagaaggacctcctggagcagaagcggggccGggtggac
aActactgcagacacaactacggggttggtGgagagcttcacagtgcagcgcgag (SEQ ID NO: ~~1-3~~
2505) ;

DRB1*030102 :

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DRB1*030201 :

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25 DRB1*030202 :

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2508) ;

DRB1*0303 :

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ctggaacagccagaaggacctcctggagcagaagcggggccGggtggacaActactgcagacacaactacggggtt
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DRB1*0304 :

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cctgatgccgagtactggaacagccagaaggacctcctggagcagaagcggggccGggtggacaActactgcagac
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DRB1*030501 :

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cctgatgccgagtactggaacagccagaaggacctcctggagcagaagcggggccGggtggacaActactgcagac
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DRB1*030502 :

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cctgatgccgagtactggaacagccagaaggacctcctggagcagaagcggggccgggtggacaActactgcagac
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DRB1*0306 :

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DRB1*0307 :

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2514) ;

DRB1*0308 :

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DRB1*0309 :

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DRB1*0310 :

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2517) ;

25 DRB1*0311 :

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cctgatgccgagtactggaacagccagaaggacctcctggagcagaagcggggcCAggtggacaActactgcagac
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DRB1*0312 :

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DRB1*0313 :

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DRB1*0314 :

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cctgatgccgagtactggaacagccagaaggacctcctggagcagaagcggggccGggtggacacctactgcagac
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DRB1*0315 :

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DRB1*0316 :

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cctgatgccgagtactggaacagccagaaggacctcctggagcagaagcggggccgggtggacaactactgcagac
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DRB1*0318 :

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 cctgatgccgagtactggaacagccagaaggacctcctggagcagaagcggggccgggtggacaactactgcagac
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DRB1*0319 :

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DRB1*0321 :

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DRB1*0322 :

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DRB1*0323 :

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DRB1*0324 :

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DRB1*0325 :

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cctgatgccgagtactggaacagccagaaggacctcctggagcagaagcggggccGggtggacaActactgcagac
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DRB1*0402 :

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10 NO: ~~4-3~~2535) ;

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2536) ;

DRB1*040302 :

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20 cctgacgcTgagtactggaacagccagaaggacctcctggagcagaggcgggccgAggtggacacctactgcagac
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DRB1*0404 :

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N0: ~~4-6-2538~~) ;

DRB1*040501 :

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DRB1*040503 :

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DRB1*040504 :

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DRB1*0406 :

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~~2543~~) ;

DRB1*040701 :

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DRB1*040702 :

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DRB1*0408 :

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DRB1*0409 :

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DRB1*0410 :

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Gcgccgagtactggaacagccagaaggacctcctggagcagaggcggcccggtggacacctactgcagacacaa
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DRB1*0411 :

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 cgccgagtactggaacagccagaaggacAtcctggaagacaggcggggcccTggtggacacctactgcagacacaac
 10 tacggggttgTgagagcttcacagtgcagcgg (SEQ ID NO: ~~5-8~~2550) ;
 DRB1*0413 :
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 15 ttcaca (SEQ ID NO: ~~5-9~~2551) ;
 DRB1*0414 :
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 20 Q ID NO: ~~6-0~~2552) ;
 DRB1*0415 :
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 cctgatgaGgagtactggaacagccagaaggacTtctggaagaGaggcggggccggtggacacctactgcagac
 25 acaactacggggttgTgagag (SEQ ID NO: ~~6-1~~2553) ;
 DRB1*0416 :
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ID NO: ~~6-2~~2554) ;

DRB1*0417 :

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NO: ~~6-3~~2555) ;

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cagaaggacAtcctggaagacaggcgggccTggtggacacctactgcagacacaactacggggttgtGgagagct
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DRB1*0419 :

15 tttcttggagcaggttaaACAtgagtgtcatttcttcaacgggacggagcgggtgcggttcctggacagatacttc
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atgccgagtactggaacagccagaaggacctcctggagcagaggcgggccggtggacacctactgcagacacaa
ctacggggttggtgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~6-5~~2557) ;

DRB1*0420 :

20 atgagtgtcatttcttcaacgggacggagcgggtgcggttcctggacagatacttctatCaccaagaggagtccgt
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ID NO: ~~6-6~~2558) ;

DRB1*0421 :

25 gagcaggttaaacatgagtgtcatttcttcaacgggacggagcgggtgcggttcctggacagatacttctatGacc
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5 gtactggaacagccagaaggacctcctggagcagaagcggggccGggtggacaActactgcagacacaactacggg
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DRB1*0423 :

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10 cctgatgccgagtactggaacagccagaaggacctcctggagcagaggcgggcccgggtggacacctactgcagac
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DRB1*0424 :

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15 cctaGgcccagtagtactggaacagccagaaggacctcctggagcGgaggcgggcccgggtggacacctactgcagac
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DRB1*0425 :

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20 cgagtactggaacagccagaaggacTtcctggaagacaggcggggcccTggtggacacctactgcagacacaactac
ggggttggtGgagag (SEQ ID NO: ~~7-1~~2563) ;

DRB1*0426 :

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25 cctgatAccgagtactggaacagccagaaggacctcctggagcagaagcgggcccgggtggacacctactgcagac
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DRB1*0427 :

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 cctgatgccgagtactggaacagccagaaggacctcctggagcagaggcggggccgAggtggacacctactgcagac
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5 DRB1*0428 :

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10 DRB1*0429 :

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 cctagcgccgagtactggaacagccagaaggacctcctggagcagaggcggggccgcggtggacacctactgcagac
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15 DRB1*0430 :

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20 DRB1*0431 :

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25 DRB1*0432 :

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cgagtactggaacagccagaaggacctcctggagcagaggcAggccgcggtggacacctactgcagacacaactac
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atgccgagtactggaacagccagaaggacctcctggagcagaAgcgggccggtggacacctactgcagacacaa
ctacggggttggtga (SEQ ID NO: ~~8-0~~2572) ;

DRB1*0435 :

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cctgatgccgagtactggaacagccagaaggacctcctggagcagaAgcgggccggtggacacctactgcagac
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DRB1*0436 :

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cctgatgccgagtactggaacagccagaaggacTtcttgaagaCaggcgggccggtggacacctactgcagac
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DRB1*0437 :

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25 cttctatcaccaagaggagtacgtgcgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcgg
cctgatgccgagtactggaacagccagaaggacctcctggaagacGAgcgggccggtggacacctactgcagac
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DRB1*0438 :

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 cctgatgccgagtactggaacagccagaaggacAtcctggagcagaAgcgggcccgggtggacacctactgcagac
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DRB1*0439 :

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 cctgatgccgagtactggaacagccagaaggacctcctggagcagaggcgggcccagggtggacacctactgcagac
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DRB1*0440 :

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 15 acaactacggggttggtgagagcttcacagtgcagcgg (SEQ ID NO: ~~8-6~~2578) ;

DRB1*0441 :

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DRB1*0442 :

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 cctgatgccgagtactggaacagccagaaggacctcctggagcagaggcgggcccgggtggacacctactgcagac
 25 acaactacggggttggtGgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~8-8~~2580) ;

DRB1*0443 ;

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DRB1*0444 :

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cctgatgccgagtactggaacagccagaaggacctcctggagcagaggcgggcccgggtggacaaTtactgcagac
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DRB1*070101 :

10 atgggtgtgtctgaagctccctggaggctcctgcatggcagctctgacagtgcactgatgggtgtgagctccccac
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15 NO: ~~9-1~~2583) ;

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20 acaactacggggttggtg (SEQ ID NO: ~~9-2~~2584) ;

DRB1*0703 :

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25 acaactacggggttggtg (SEQ ID NO: ~~9-3~~2585) ;

DRB1*0704 :

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tcgccgagtcctggaacagccagaaggacatcctggaggacaggcggggccagggtggacaaTtactgcagacacaa
ctacggggttggtgagagc (SEQ ID NO: ~~9-4~~2586) ;

DRB1*0705 :

5 cacgtttcctgtggcagggttaagtataagtgtcatttcttcaacgggacggagcgggtgcagttcctggaaagact
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DRB1*0706 :

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DRB1*0707 :

15 cacgtttcctgtggcagggttaagtataagtgtcatttcttcaacgggacggagcgggtgcagttcctggaaagact
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DRB1*080101 :

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25 DRB1*080102 :

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DRB1*080201 :

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5 tggctttggctggggacaccagaccagtttcttggagtactctacgggtgagtgtatttcttcaatgggacgga
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NO: ~~1-0-0~~2592) ;

10 DRB1*080202 :

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cctgatgccgagtactggaacagccagaaggacTtcttgaagacaggcggggcccTggtggacacactactgcagac
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15 DRB1*080203 :

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tgatgccgagtactggaacagccagaaggacttcttgaagacaggcggggccctggtggacacactactgcagacac
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20 DRB1*080302 :

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25 2595) ;

DRB1*080401 :

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tcctggacagatacttctataaccaagaggagtAcgtgcgcttcgacagcgacgtgggggagtaccgggcggtgac
ggagctggggcggcctgatgccgagtactggaacagccagaaggacTtcctggaagacaggcgggcccTggtggac
acctactgcagacacaactacggggttgTgagagcttcacagtgcagcgcgag (SEQ ID NO: ~~1-0-4~~
2596) ;

5 DRB1*080402 :

ttcaatgggacggagcgggtgcggttcctggacagatacttctataaccaagaggagtAcgtgcgcttcgacagcg
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ggaagacaggcgggcccTggtggacacctactgcagacacaactacggggttgTgagagcttcacagtgcagcgg
(SEQ ID NO: ~~1-0-5~~2597) ;

10 DRB1*080403 :

cacgtttcttggagtactctacgggtgagtgttatttcttcaatgggacggagcgggtgcggttcctggacagata
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cctgatgccgagtactggaacagccagaaggacttcctggaagacaggcgggcccTggtggacacctactgcagac
acaactacggggttgTgagagcttcacGgtgcagcgcgga (SEQ ID NO: ~~1-0-6~~2598) ;

15 DRB1*080404 :

cacgtttcttggagtactctacgggtgagtgttatttcttcaatgggacggagcgggtgcggttcctggacagata
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cctgatgccgagtactggaacagccagaaggacttcctggaagacaggcgggcccTggtggacacctactgcagac
acaactacggggttgTgagagcttcacGgtgcagcgcgag (SEQ ID NO: ~~1-0-7~~2599) ;

20 DRB1*0805 :

cacgtttcttggagtactctacgggtgagtgtTatttcttcaatgggacggagcgggtgcggttcctggacagata
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cctaGgccgagtactggaacagccagaaggacTtcctggaagaGaggcgggcccgcggtggacacctactgcagac
acaactacggggttggt (SEQ ID NO: ~~1-0-8~~2600) ;

25 DRB1*0806 :

ccacgtttcttggagtactctacgggtgagtgttatttcttcaatgggacggagcgggtgcggttcctggacagat
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gcctaGcgccgagtacttggaacagccagaaggacTtcctggaagacaggcggggcccTggtggacacctactgcagac
cacaactacgggggttgGgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~1-0-9~~2601) ;

DRB1*0807 :

cacgtttcttgagtagtactctacgggtgagtgttatttcttcaatgggacggagcgggtgcggttcctggacagata
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cctgTtgcgagtagtacttggaacagccagaaggacTtcctggaagacaggcggggcccTggtggacacctactgcagac
acaactacgggggttggtgagagcttcacGgtgcagcggcgag (SEQ ID NO: ~~1-1-0~~2602) ;

DRB1*0808 :

ttggagtactctacgggtgagtgttatttcttcaatgggacggagcgggtgcggttcctggacagatacttctata
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ggagCacttggaacagccagaaggacttctggaagacaggcggggcccTggtggacacctactgcagacacaactac
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DRB1*0809 :

cacgtttcttgagtagtactctaGgggtgagtgttatttcttcaatgggacggagcgggtgcggttcctggacagata
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cctgatgccgagtagtacttggaacagccagaaggacTtcctggaagacaggcggggcccTggtggacacctactgcagac
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DRB1*0810 :

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cctaGcgccgagtagtacttggaacagccagaaggacAtcctggaagacaggcggggcccTggtggacacctactgcagac
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DRB1*0811 :

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cctgGtgcgagtagtacttggaacagccagaaggacttctggaagacaggcggggcccTggtggacacctactgcagac
acaactacgggggttggtgagagcttcacGgtg (SEQ ID NO: ~~1-1-4~~2606) ;

DRB1*0812 :

cacgtttcttggagtactctacgggtgagtgttattttcttcaatgggacggagcgggtgcggttcctggacagata
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cctagcgcgagtagtactggaacagccagaaggacAtcctggaagacaggcggggcccTggtggacacctactgcagac
5 acaactacggggCtgtggagagcttcacagtgcagcggcgag (SEQ ID NO: ~~1-1-5~~2607) ;

DRB1*0813 :

tcttggagtactctacgggtgagtgtTattttcttcaatgggacggagcgggtgcggttcctggacagatacttcta
taaccaagaggagtAcgtgcgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcggcctgat
gccgagtactggaacagccagaaggacctcctggaagacaggcggggcccTggtggacacctactgcagacacaact
10 acggggttggtgagagcttcacGgtg (SEQ ID NO: 1 1 6 2608) ;

DRB1*0814 :

cacgtttcttggagtactctaGgggtgagtgttattttcttcaatgggacggagcgggtgcggttcctggacagata
cttctataaccaagaggagtacgtgcgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcgg
cctagcgcgagtagtactggaacagccagaaggacatcctggaagacaggcggggcccTggtggacacctactgcagac
15 acaactacggggttggtgagagcttcacagtg (SEQ ID NO: ~~1-1-7~~2609) ;

DRB1*0815 :

tttcttggagtactctacgggtgagtgttattttcttcaatgggacggagcgggtgcggttcctggacagatacttc
tataaccaagaggagtacgtgcgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcggcctg
atgcggagGactggaacagccagaaggacAtcctggaagacaggcggggcccTggtggacacctactgcagacaaa
20 ctacggggttggtg (SEQ ID NO: ~~1-1-8~~2610) ;

DRB1*0816 :

cacgtttcttggagtactctacgggtgagtgttattttcttcaatgggacggagcgggtgcggttcctggacagata
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cctagcgcgagtagtactggaacagccagaaggacttcctggaagacaggcggggcccTggtggacacctactgcagac
25 acaactacggggttggtgagagcttcacGgtgcagcggcgag (SEQ ID NO: ~~1-1-9~~2611) ;

DRB1*0817 :

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cttctataaccaagaggagtacgtgcgcttcgacagcgacgtgggggagtTccgggcggtgacggagctggggcgg
cctaGcgccgagtactggaacagccagaaggacTtcttgaagacaggcggggcccTggtggacacctactgcagac
acaactacggggttggtg (SEQ ID NO: ~~1-2-0~~2612) ;

DRB1*0818 :

5 cacttttcttggagtactctaGgggtgagtgtTatttcttcaatgggacggagcgggtgcggttcctggacagata
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cctaGcgccgagtactggaacagccagaaggacAtcctggaagaGaggcgggcccgggtggacacctactgcagac
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DRB1*0819 :

10 tttcttggagtactctacgggtgagtgttatttcttcaatgggacggagcgggtgcggttcctggacagatacttc
tataaccaagaggagtacgtgcgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcggccta
TcgccgagtactggaacagccagaaggacAtcctggaagacaggcggggcccTggtggacacctactgcagacacaa
ctacggggttggtgagagcttcacagtgc (SEQ ID NO: ~~1-2-2~~2614) ;

DRB1*0820 :

15 cacttttcttggagtactctacgtGtgagtgtcatttcttcaatgggacggagcgggtgcggttcctggacagata
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cctgatgccgagtactggaacagccagaaggacTtcttgaagacaggcggggcccTggtggacacctactgcagac
acaactacggggttggtGgagagcttcacagtgcagcggcga (SEQ ID NO: ~~1-2-3~~2615) ;

DRB1*0821 :

20 cacttttcttggagtactctaTgggtgagtgttatttcttcaatgggacggagcgggtgcggttcctggacagata
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cctgatgccgagtactggaacagccagaaggacttcttgaagacaggcggggccctggtggacacctactgcagac
acaactacggggttggtgagagcttcacggtgcagcggcga (SEQ ID NO: ~~1-2-4~~2616) ;

DRB1*0822 :

25 cacttttcttggagtactctacgggtgagtgttatttcttcaatgggacggagcgggtgcggttcctggacagata
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acaactacggggCtgtGgagagcttcacGgtgcagcggcgag (SEQ ID NO: ~~1-2-5~~2617) ;

DRB1*0823 :

cacgtttcttgagtagtactctacgggtgagtggtattttcttcaatgggacggagcgggtgcggttctggacagata
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5 cctagcgcgagtagtactggaacagccagaaggacatcctggaagacaggcgggcccTggtggacacctactgcagac
acaactacggggttggtgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~1-2-6~~2618) ;

DRB1*0824 :

cacgtttcttgagtagtactctacgggtgagtggtTattttcttcaatgggacggagcgggtgcggttctggacagata
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10 cctgatgccgagtagtactggaacagccagaaggacTtctggaagaGaggcgggcggcggtggacacctactgcagac
acaactacggggttggtgagagcttcacagtgcagcgg (SEQ ID NO: ~~1-2-7~~2619) ;

DRB1*090102 :

ggggacacccaaccacgtttcttgaagcaggataagtttgagtgtcattttcttcaacgggacggagcgggtgcggt
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15 ggagctggggcggcctgtcgccgagtGctggaacagccagaaggacttctggagcggagggcggccgaggtggac
accgtgtgcagacacaaactacggggttggtgagagcttcacagtgcagAggcgag (SEQ ID NO: ~~1-2-8~~
2620) ;

DRB1*0902 :

cacgtttcttgaagcaggataagtttgagtgtcattttcttcaacgggacggagcgggtgcggtatctgcacagagg
20 catctataaccaagaggagaacgtgcgcttcgacagcgacgtgggggagtaccgggcgggtgacggagctggggcgg
cctgacgcTgagtactggaacagccagaaggacttctggagcggagggcggccgaggtggacaccgtgtgcagac
acaactacggggttggtgagagcttcacagtgcagAggcgag (SEQ ID NO: ~~1-2-9~~2621) ;

DRB1*100101 :

atggtgtgtctgaggctccctggaggctcctgcatggcagttctgacagtgcactgatggtgctgagctccccac
25 tggctttggctggggacaccagaccacgtttcttggaggagggttaagtttgagtgtcattttcttcaacgggacgga
gcgggtgcggttgctggaagacgcgtccataaccaagaggagtacgcgcgtacgacagcgacgtgggggagtac
cgggcgggtgacggagctggggcggcctgatgccgagtagtactggaacagccagaaggacctcctggagcggaggcgTg

ccgcggtggacacctactgcagacacaactacggggttggtgagagcttcacagtgcagcggcgag (SEQ ID
 NO: ~~1-3-0~~2622) ;

DRB1*100102 :

cacgtttcttgaggaggtaagtttgagtgtcatttctcaacgggacggagcgggtgcggttgctggaaagacg
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 cctgatgccgagtactggaacagccagaaggacctcctggagcggaggcgGccgcggtggacacctactgcagac
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DRB1*110101 :

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 10 tggctttggctggggacaccagaccacgtttcttgagtactctacgtctgagtgtcatttcttcaatgggacgga
 gcgggtgcggttcctggacagatacttctataaccaagaggagtacgtgcgcttcgacagcgacgtgggggagttc
 cgggcggtgacggagctggggcggcctgatgaGgagtactggaacagccagaaggacTtctggaagaGaggcggg
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 NO: ~~1-3-2~~2624) ;

15 DRB1*110102 :

ggggacaccagaccacgtttcttgagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggt
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 ggagctggggcggcctgatgaGgagtactggaacagccagaaggacTtctggaagaGaggcgggccggtggac
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 20 2625) ;

DRB1*110103 :

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 cctgatgaGgagtactggaacagccagaaggacTtctggaaGaGaggcgGccgcggtggacacctactgcagac
 25 acaactacggggttggtgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~1-3-4~~2626) ;

DRB1*110104 :

cgtttcttgagtactctacgtctgagtgtcatttcttcaaGgggacggagcgggtgcggttcctggacagatact

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 tgatgAggagtactggaacagccagaaggacTtcctggaagaGaggcgggccggtggacacctactgcagacac
 aactacggggttggtgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~1-3-5~~2627) ;

DRB1*1102 :

5 ggggacaccagaccacgtttcttgagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggt
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2628) ;

10 DRB1*1103 :

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DRB1*110401 :

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 20 gcgggtgcggttcctggacagatacttctataaccaagaggagtacgtgcgcttcgacagcgacgtgggggagttc
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 NO: ~~1-3-8~~2630) ;

DRB1*110402 :

25 ggggacaccagaccacgtttcttgagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggt
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DRB1*1105 :

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DRB1*110601 :

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DRB1*110602 :

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DRB1*1107 :

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 GgagtactggaacagccagaaggacctcctggagcagaagcggggccGggtggacaActactgcagacacaactac
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DRB1*110801 :

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 gccagaaggacctcctggaagaCaggcgggccggtggacacactactgcagacacaactacggggttgTgagag
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DRB1*110802 :

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DRB1*1109 :

catttcttcaatgggacggagcgggtgcggttcctggacagatacttccataaccaGgaggagAAcgtgcgcttcg
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DRB1*1110 :

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DRB1*1111 :

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DRB1*111201 :

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25 NO: ~~1-4-9~~2641) ;

DRB1*111202 :

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cctgatgAggagtactggaacagccagaaggacTtcttggaagaGaggcgggccggtggacacctactgcagac
acaactacggggttggtgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~1-5-0-2642~~) ;

DRB1*1113 :

5 ggggacaccagaccacgtttcttgagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggt
tcctggacagatacttccataaccaggaggagttoctgcgcttcgacagcgacgtgggggagtTccgggcggtgac
ggagctggggcggcctgatgAGgagtactggaacagccagaaggacctctggagcGgaggcgggccggtggac
acctaTtgacagacacaactacggggttggtGgagagcttcacagtgcagcggcga (SEQ ID NO: ~~1-5-1-2643~~) ;

10 DRB1*1114 :

ggggacaccagaccacgtttcttgagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggt
tcctggacagatacttctataaccaagaggagtacgtgcgcttcgacagcgacgtgggggagttccgggcggtgac
ggagctggggcggcctgatgAggagtactggaacagccagaaggacAtcctggaagacGAgcgggccggtggac
acctactgcagacacaactacggggttggtgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~1-5-2-2644~~) ;

15 DRB1*1115 :

ggggacaccagaccacgtttcttgagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggt
tcctggacagatacttctataaccaagaggaggacTtgcgcttcgacagcgacgtgggggagttccgggcggtgac
ggagctggggcggcctgatgAGgagtactggaacagccagaaggacTtcttgaaGaGaggcgggccggtggac
20 acctactgcagacacaactacggggttggtgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~1-5-3-2645~~) ;

DRB1*1116 :

cacgtttcttgagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggttcctggacagata
cttccataaccaggaggagAacgtgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcgg
25 cctgatgAggagtactggaacagccagaaggacAtcctggaagacGAgcgggccggtggacacctactgcagac
acaactacggggttggtGgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~1-5-4-2646~~) ;

DRB1*1117 :

ggggacaccagaccacgtttcttgagtactctacgtCtgagtgtcatttcttcaatgggacggagcgggtgcggt
 tcctggacagatacttccataaccaggaggagttcgtgcgttcgacagcgacgtgggggagtaccgggcggtgac
 ggagctggggcggcctgatgAGgagtactggaacagccagaaggacctcctggagcggaggcggccgAggtggac
 acctaTtgcagacacaactacggggttgTgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~1-5-5-~~

5 2647) ;

DRB1*1118 :

tttcttgagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggttcctggacagatacttc
 tataaccaagaggagtAcgtgcgttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctg
 atgAggagtactggaacagccagaaggacAtcctggaagaGaggcgggcccggtggacacctactgcagacacaa
 10 ctacggggttgTgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~1-5-6-~~2648) ;

DRB1*1119 :

tttcttgagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggttcctggacagatacttc
 tataaccaagaggagtAcgtgcgttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctg
 atgAggagtactggaacagccagaaggacAtcctggaagaGaggcgggcccggtggacacctactgcagacacaa
 15 ctacggggttgTgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~1-5-7-~~2649) ;

DRB1*1120 :

ttggagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggttcctggacagatacttccata
 accaggaggagAacgtgcgttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgatgA
 ggagtactggaacagccagaaggacAtcctggaagacGAgcgggcccggtggacacctactgcagacacaactac
 20 ggggttgTgagagcttcacagtgcagc (SEQ ID NO: ~~1-5-8-~~2650) ;

DRB1*1121 :

ttggagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggttcctggacagatacttctata
 accaagaggagtacgtgcgttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgatga
 ggagtactggaacagccagaaggacatcctggaagacGAgcgggcccggtggacacctactgcagacacaactac
 25 ggggCtgtggaga (SEQ ID NO: ~~1-5-9-~~2651) ;

DRB1*1122 :

cacgtttcttgagcagggttaaGatgagtgtcatttcttcaatgggacggagcgggtgcggttcctggacagata

cttctataaccaggaggagtacgtgcgcttcgacagcgacgtgggggagtTccgggcggtgacggagctggggcgg
cctgatgaGgagtactggaacagccagaaggacTtcctggaagaGaggcgggccggtggacacctactgcagac
acaactacggggttggtgagag (SEQ ID NO: ~~1-6-0~~2652) ;

DRB1*1123 :

5 ccacgtttcttgagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggttcctggacagat
acttctataaccaagaggagtacgtgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcgg
gcctgatgAGgagtactggaacagccagaaggacTtcctggaagaGaggcgggccCTggtggacacctactgcaga
cacaactacggggttggtg (SEQ ID NO: ~~1-6-1~~2653) ;

DRB1*1124 :

10 ttcttggagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggttcctggacagatacttct
ataaccaagaggagGacgtgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctga
tgaGgagtactggaacagccagaaggacTtcctggaagaGaggcgggccggtggacacctactgcagacacaac
tacggggttggtgagagcttcac (SEQ ID NO: ~~1-6-2~~2654) ;

DRB1*1125 :

15 cacgtttcttgagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggttcctggacagata
cttctataaccaagaggagtacgtgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcgg
cctgatgaGgagtactggaacagccagaaggacTtcctggaagacaggcggggcccTggtggacacctactgcagac
acaactacggggttggtGgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~1-6-3~~2655) ;

DRB1*1126 :

20 ttggagtactctacgtGtgaGtgatcttcttcaatgggacggagcgggtgcggttcctggacagatacttctata
accaagaggagtAcgtgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgatGA
ggagtactggaacagccagaaggacctcctggagcagaggcgggccggtggacacctactgcagacacaactac
ggggttggtgag (SEQ ID NO: ~~1-6-4~~2656) ;

DRB1*112701 :

25 tttcttggagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggttcctggacagatacttc
tataaccaagaggagtacgtgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctg
atgaggagtactggaacagccagaaggacttcctggaAgaGaggcgggccggtggacaaTtactgcagacacaa

ctacggggttggtgagag (SEQ ID NO: ~~1-6-5~~2657) ;

DRB1*112702 :

cacgtttcttgagtagtactctacgtctgagtgatcatttcttcaatgggacggagcgggtgcggttcctggacagata
cttctataaccaagaggagtacgtgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcgg
5 cctgatgAggagtactggaacagccagaaggacttcctggaagaCaggcgggccggttgacacActactgcagac
acaactacggggttggtgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~1-6-6~~2658) ;

DRB1*1128 :

cacgtttcttgagtagtactctacgtctgaGtgatcatttcttcaatgggacggagcgggtgcggttcctggacagata
cttctataaccaagaggagAAcgtgcgcttcgacagcgacgtgggggagTccgggcggtgacggagctggggcgg
10 cctgatgAggagtactggaacagccagaaggacTtctggaagaCaggcgggccggttgacacactactgcagac
acaactacggggttggtgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~1-6-7~~2659) ;

DRB1*1129 :

cacgtttcttgagtagtactctaGgtGtgatcatttcttcaatgggacggagcgggtgcggttcctggacagata
cttctataaccaagaggagtccgtgcgcttcgacagcgacgtgggggagTccgggcggtgacggagctggggcgg
15 cctgatgAggagtactggaacagccagaaggacTtctggaagaCaggcgggccggttgacacactactgcagac
acaactacggggttggtgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~1-6-8~~2660) ;

DRB1*1130 :

cacgtttcttgagtagtactctacgtctgagtgatcatttcttcaatgggacggagcgggtgcggttcctggacagata
cttctataaccaagaggagtacgtgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcgg
20 cctgatgaggagtactggaacagccagaaggacttcctggaagaCaggcgggccggttgacacactactgcagac
acaactacggggttggtgagagcttcacagtgcagcggcga (SEQ ID NO: ~~1-6-9~~2661) ;

DRB1*1131 :

ggggacaccagaccacgtttcttgagtagtactctacgtctgagtgatcatttcttcaatgggacggagcgggtgcggt
tcctggacagatacttctataaccaagaggagtacgtgcgcttcgacagcgacgtgggggagttccgggcggtgac
25 ggagctggggcgccctgatgAggagCactggaacagccagaaggacAtcctggaagaCaggcgggccggttgac
acactactgcagacacaactacggggttggtgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~1-7-0~~
2662) ;

DRB1*1132 :

cacgtttcttggagtactctacgtctgagtgatcatttcttcaatgggacggagcgggtgcggttcctggacagata
cttctataaccaagaggagtacgtgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcgg
cctgatgAGgagtactggaacagccagaaggacTtcttgaagaCaggcgggcccTggtggacacctactgcagac
5 acaactacggggttggtgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~1-7-1~~2663) ;

DRB1*1133 :

ttggagtactctacgtctgagtgatcatttcttcaatgggacggagcgggtgcggttcctggacagataacttctata
accaagaggagtacgtgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgatga
ggaCtactggaacagccagaaggacttccttgaagacaggcgggcccgggtggacacctactgcagacacaactac
10 ggggttggtgagagcttcacagtgcagcggc (SEQ ID NO: ~~1-7-2~~2664) ;

DRB1*1134 :

cacgtttcttggagtactctacgtctgagtgatcatttcttcaatgggacggagcgggtgcggttcctggacagata
cttctataaccaagaggagtAcgtgcgcttcgacagcgacgtgggggagTccgggcggtgacggagctggggcgg
cctgatgAggagtactggaacagccagaaggacctccttggagcagaggcgggcccgggtggacacctactgcagac
15 acaactacggggttgTgagagcttcacagtgcagcggcga (SEQ ID NO: ~~1-7-3~~2665) ;

DRB1*1135 :

ttggagtactctacgtctgagtgatcatttcttcaatgggacggagcgggtgcggttcctggacagataacttctata
accaagaggagtacgtgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgatga
ggaCtactggaacagccagaaggacttccttgaagacaggcgggcccgggtggacacctactgcagacacaactac
20 ggggttgTgagagcttcacagtgcagcggc (SEQ ID NO: ~~1-7-4~~2666) ;

DRB1*1136 :

cgtttcttggagtactctacgtctgagtgatcatttcttcaatgggacggagcgggtgcggttcctggacagataact
tctataaccaagaggagtacgtgcgcttcgacagcgacgtgggggagTccgggcggtgacggagctggggcggcc
tgatgAggagtactggaacagccagaaggacctccttgaagacGAgcgggcccgggtggacacctactgcagacac
25 aactacggggttgTgagagcttcacagtgcagcggcga (SEQ ID NO: ~~1-7-5~~2667) ;

DRB1*1137 :

cacgtttcttggagtactctaCgtCtgaGtgatcatttcttcaatgggacggagcgggtgcggttcctggacagata

cttctataaccaagaggagtAcgtgCGcttcGacagCGacgtgggggagtaccgggCGgtGacggagctggggCGg
cctgatGAggagtactggaacagccagaaggacTtcctggaagaGaggCGggCGCGgttgGacacctactgcagac
acaactacggggttggtgagagcttcacagtgcagCGgCGag (SEQ ID NO: ~~1-7-6~~2668) ;

DRB1*1138 :

5 caggtttcttgagtagtctacgtctgagtgtcatttcttcaatgggacggagCGgggtgcggttcctggacagata
cttctataaccaagaggagtacgtgCGcttcGacagCGacgtgggggagtccgggCGgtGacggagctggggCGg
cctgatgaggGgtactggaacagccagaaggacttcctggaagacaggCGggCGCGgttgGacacctactgcagac
acaactacggggttggtgagagcttcacagtgcagCGgCGag (SEQ ID NO: ~~1-7-7~~2669) ;

DRB1*1139 :

10 caggtttcttgagtagtctacgtctgagtgtcatttcttcaatgggacggagCGgggtgcggttcctggacagata
cttctataaccaagaggagtacgtgCGcttcGacagCGacgtgggggagtccgggCGgtGAGggagctggggCGg
cctgatgaggagtactggaacagccagaaggacttcctggaagaGaggCGggCGCGgttgGacacctactgcagac
acaactacggggttggtgagagcttcacagtgcagCGgCGag (SEQ ID NO: ~~1-7-8~~2670) ;

DRB1*1140 :

15 caggtttcttgagtagtctacgtctgagtgtcatttcttcaatgggacggagCGgggtgcggttcctggacagata
cttcataaccaggaggagAacgtgCGcttcGacagCGacgtgggggagtTccgggCGgtGacggagctggggCGg
cctgatGAggagtactggaacagccagaaggacTtcctggaagacGAgCGggCGCGgttgGacacctactgcagac
acaactacggggttggtGg (SEQ ID NO: ~~1-7-9~~2671) ;

DRB1*1141 :

20 tttcttgagtagtctacgtctgagtgtcatttcttcaatgggacggagCGgggtgcggttcctggacagatacttc
tataaccaagaggagtacgtgCGcttcGacagCGacgtgggggagtaccgggCGgtGacggagctggggCGgcctg
atGAggagtactggaacagccagaaggacTtcctggaagacGAgCGggCGCGgttgGacacctactgcagacacaa
ctacggggttggtGgagagcttcacagtgcagCGgCGag (SEQ ID NO: ~~1-8-0~~2672) ;

DRB1*1142 :

25 caggtttcttgagtagtctacgtctgagtgtcatttcttcaatgggacggagCGgggtgcggttcctggacagata
cttctataaccaagaggagtAcgtgCGcttcGacagCGacgtgggggagtTccgggCGgtGacggagctggggCGg
cctgatGAggagtactggaacagccagaaggaccttcctggaagaGaggCGggCGCGgttgGacacctactgcagac

acaactacggggttgTgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~1-8-1~~2673) ;

DRB1*1143 :

cacgtttcttgagtagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggttcttgacagata
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5 cctgatgaggagtactggaacagccagaaggacttctggaagaCaggcgggccggttgacacctactgcagac
acaactacggggttgTgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~1-8-2~~2674) ;

DRB1*120101 :

atgggtgtgtctgaggctccctggaggctcctgcatggcagtTctgacagtgcactgatgggtctgagctccccac
tggtcttggtggggacaccAgaccacgtttcttgagtagtactctacgggtgagtgttatttcttcaatgggacgga

10 gcgggtgcggttActggagagacacttccataaccaggaggagCtctgcgcttcgacagcgacgtgggggagttc
cgggcggtgacggagctggggcggcctgtcgccgagtCctggaacagccagaaggacAtcctggaagacaggcgcg

ccgcggtggacacctaTtgacagacaaactacggggCtgtggagagcttcacagtgcagcggcgag (SEQ ID
NO: ~~1-8-3~~2675) ;

DRB1*120102 :

15 atgggtgtgtctgaggctccctggaggctcctgcatggcagtTctgacagtgcactgatgggtctgagctccccac
tggtcttggtggggacaccAgaccacgtttcttgagtagtactctacgggtgagtgttatttcttcaatgggacgga

gcgggtgcggttActggagagacacttccataaccaggaggagCtctgcgcttcgacagcgacgtgggggagttc
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ccgcggtggacacctactgcagacacaaactacggggCtgtggagagcttcacagtgcagcggcgag (SEQ ID
20 NO: ~~1-8-4~~2676) ;

DRB1*120201 :

cacgtttcttgagtagtactctacgggtgagtgttatttcttcaatgggacggagcgggtgcggttactggagagaca
cttccataaccaggaggagCtctgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcgg

cctgtcgccgagtctggaacagccagaaggacTtctggaagacaggcgccggttgacacctaTtgacagac
25 acaactacggggCtgtggagagcttcacagtgcagcggcgag (SEQ ID NO: ~~1-8-5~~2677) ;

DRB1*120202 :

ttcttgagtagtactctacgggtgagtgttatttcttcaatgggacggagcgggtgcggttactggagagacacttcc

ataaccaggaggagCtcctgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgt
cgccgagtcctggaacagccagaaggacTtcctggaagacaggcgGgccgcggtggacacctactgcagacacaac
tacggggCtgtggag (SEQ ID NO: ~~1-8-6~~2678) ;

DRB1*120302 :

5 cacttttcttgagtagtactctacgggtgagtgttattttcttcaatgggacggagcggggtgcggttActggagagaca
cttcataaccaggaggagCtcctgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcg
cctgtcgccgagtCctggaacagccagaaggacAtcctggaagacaggcgGgccgcggtggacacctactgcagac
acaactacggggttgtggagagcttcacagtgcagcg (SEQ ID NO: ~~1-8-7~~2679) ;

DRB1*1204 :

10 gactactctacgggtgagtgttattttcttcaatgggacggagcggggtgcggttactggagagacacttcataacc
aggaggagCtcctgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgatgaGga
gtactggaacagccagaaggacAtcctggaagacaggcgccgcggtggacacctaTtgcagacacaactacggg
gCtgtgg (SEQ ID NO: ~~1-8-8~~2680) ;

DRB1*1205 :

15 cacttttcttgagtagtactctacgggtgagtgttattttcttcaatgggacggagcggggtgcggttActggagagaca
cttcataaccaggaggagttcctgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcg
cctgtcgccgagtCctggaacagccagaaggacAtcctggaagacaggcgccgcggtggacacctaTtgcagac
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DRB1*1206 :

20 ggggacaccagaccacgtttcttgagtagtactctacgggtgagtgttattttcttcaatgggacggagcggggtgcggt
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ggagctggggcggcctgtcgccgagtCctggaacagccagaaggacAtcctggaagacaggcgccgcggtggac
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2682) ;

25 DRB1*1207 :

cacttttcttgagtagtactctacgggtgagtgttattttcttcaatgggacggagcggggtgcggttactggagagaca
cttcataaccaggaggagctcctgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcg

cctgtcgcgagtcctggaacagccagaaggacatcctggGagacaggcgcgccggtggacacctaattgcagac
acaactacggggctgtggagagcttcacagtgcagcggcgag (SEQ ID NO: ~~1-9-1~~2683) ;

DRB1*1208 :

cacgtttcttggagtactctacgggtgagtgttatttcttcaatgggacggagcgggtgcggttCctggagagaca
5 cttccataaccaggaggagCtctcgcgttcgacagcgacgtgggggagttccggcggtgacggagctggggcgg
cctgtcgcgagtcctggaacagccagaaggacAtcctggaagacaggcgcgccggtggacacctaTtgcagac
acaactacggggCtgtggagagcttcacagtgcagcggcgag (SEQ ID NO: ~~1-9-2~~2684) ;

DRB1*130101 :

ggggacaccagaccacgtttcttggagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggt
10 tcctggaGagatacttccataaccaggaggagAAcgtgcgttcgacagcgacgtgggggagTccggcggtgac
ggagctggggcggcctgatgccgagtactggaacagccagaaggacAtcctggaagacGAgcgggccgcggtggac
acctactgcagacacaactacggggttgtGgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~1-9-3~~
2685) ;

DRB1*130102 :

cacgtttcttggagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggttcttgacagata
15 cttccataaccaggaggagaacgtgcgttcgacagcgacgtgggggagttccggcggtgacggagctggggcgg
cctgatgccgagtactggaacagccagaaggacatcctggaagacgagcgggcTgcggtggacacctaTtgcagac
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DRB1*130103 :

cacgtttcttggagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggttcttgacagata
20 cttccataaccaggaggagaacgtgcgttcgacagcgacgtgggggagttccggcggtgacggagctggggcgg
cctgatgccgagtactggaacagccagaaggacatcctggaagacGAgcgggccgcggtggacacctaTtgcagac
acaactacggggttgtGgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~1-9-5~~2687) ;

DRB1*130201 :

ggggacaccagaccacgtttcttggagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggt
25 tcctggaGagatacttccataaccaggaggagAAcgtgcgttcgacagcgacgtgggggagTccggcggtgac
ggagctggggcggcctgatgccgagtactggaacagccagaaggacAtcctggaagacGAgcgggccgcggtggac

acctactgcagacacaaactacggggttggtgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~1-9-6-2688~~) ;

DRB1*130202 :

cacgtttcttgagtagtctacgtctgagtgatcatttcttcaatgggacggagcgggtgcggttcctggacagata
 5 cttccataaccaggaggagaacgtgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcgg
 cctgatgccgagtactggaacagccagaaggacatcctggaagacGAgcgGgccggtggacacctactgcagac
 acaactacggggttggtgagagcttcacagtgcagcgg (SEQ ID NO: ~~1-9-7-2689~~) ;

DRB1*130301 :

ggggacaccagaccacgtttcttgagtagtctacgtctgagtgatcatttcttcaatgggacggagcgggtgcggt
 10 tcctggacagatacttctataaccaagaggagtacgtgcgcttcgacagcgacgtgggggagtaccgggcggtgac
 ggagctggggcggcctagGgccgagtactggaacagccagaaggacatcctggaagaCaAgcgggcccgggtggac
 acctactgcagacacaaactacggggttggtgagagcttcacGgtgcagcggcgag (SEQ ID NO: ~~1-9-8-2690~~) ;

DRB1*130302 :

ttggagtactctacgtctgagtgatcatttcttcaatgggacggagcgggtgcggttcctggacagatacttctata
 15 accaagaggagtacgtgcgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcggcctaGcgc
 cgagtactggaacagccagaaggacatcctggaagaCaAgcgggcccgggtggacacctactgcagacacaaactac
 ggggttggtgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~1-9-9-2691~~) ;

DRB1*1304 :

ggggacaccagaccacgtttcttgagtagtctacgtctgagtgatcatttcttcaatgggacggagcgggtgcggt
 20 tcctggacagatacttctataaccaagaggagtacgtgcgcttcgacagcgacgtgggggagtTccgggcggtgac
 ggagctggggcggcctaGcgcgagtactggaacagccagaaggacatcctggaagacGAgcgggcccgggtggac
 acctactgcagacacaaactacggggttggtGgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~2-0-0-2692~~) ;

25 DRB1*1305 :

cgtttcttgagtagtctacgtctgaGtgatcatttcttcaatgggacggagcgggtgcggttcctggacagatact
 tccataaccaGgaggagAacgtgcgcttcgacagcgacgtgggggagtTccgggcggtgacggagctggggcggcc

tgatgccgagtactggaacagccagaaggacTtcctggaagaCaggcgggccggtggacacctactgcagacac
aactacggggttggtgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~2-0-1~~2693) ;

DRB1*1306 :

5 tgtcatttcttcaatgggacggagcgggtgcggttcttgaCagatacttcataaccaggaggagAacgtgcgct
tcgacagcgacgtgggggagtTccgggcggtgacggagctggggcgccctgatgccgagtactggaacagccagaa
ggacAtcctggaagaCaggcgggccggtggacacctactgcagacacaactacggggttgTgagagcttcaca
(SEQ ID NO: ~~2-0-2~~2694) ;

DRB1*130701 :

10 cacgtttcttggagtactCtaCgtCtgaGtgatcatttcttcaatgggacggagcgggtgcggttcttgaCagata
cTtctataaccaagaggagtAcgtgcgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcgg
cctgatgccgagtactggaacagccagaaggacTtcctggaaGaCaggcgggccggtggacacctactgcagac
acaactacggggttggtgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~2-0-3~~2695) ;

DRB1*130702 :

15 cacgtttcttggagtactctacgtCtgagtgtcatttcttcaatgggacggagcgggtgcggttcttgaCagata
cTtctataaccaagaggagtAcgtgcgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcgg
cctgacgcTgagtactggaacagccagaaggacTtcctggaaGaCaggcgggccggtggacacctactgcagac
acaactacggggttggtgagagcttcacagtgcagcggcg (SEQ ID NO: ~~2-0-4~~2696) ;

DRB1*1308 :

20 ttcttggagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggttcttgaCagatacttcc
ataaccaggaggagtTcgtgcgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcgccctga
tgccgagtactggaacagccagaaggacatcctggaagacGAgcgggccggtggacacctactgcagacacaac
tacggggttgTgagagcttcacagtg (SEQ ID NO: ~~2-0-5~~2697) ;

DRB1*1309 :

25 tttcttggagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggttcttgaCagatacttc
cataaccaggaggagaAcgtgcgcttcgacagcgacgtgggggagtTccgggcggtgacggagctggggcgccctg
atgccgagtactggaacagccagaaggacAtcctggagcaggCgcgggccggtggacacctactgcagacacaa
ctacggggttgTgagagcttcacagtg (SEQ ID NO: ~~2-0-6~~2698) ;

DRB1*1310 :

cacgtttcttggagtactctacgtctgagtgtcattttctcaatgggacggagcgggtgcggttcctggaCagata
 cttccataaccaggaggagAacgtgcgcttcgacagcgacgtgggggagtTccgggcggtgacggagctggggcgg
 cctgatgccgagtactggaacagccagaaggacAtcctggaagaCaAgcgggcccgcggtggacacctactgcagac
 5 acaactacggggttgtGgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~2-0-7~~2699) ;

DRB1*1311 :

cacgtttcttggagtactctacgtctgagtgtcattttctcaatgggacggagcgggtgcggttcctggacagata
 cttctataaccaagaggagtAcgtgcgcttcgacagcgacgtgggggagtTccgggcggtgacggagctggggcgg
 cctgatgccgagtactggaacagccagaaggacTtctggaagaCaggcgggcccgcggtggacacctactgcagac
 10 acaactacggggttgtGgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~2-0-8~~2700) ;

DRB1*1312 :

cacgtttcttggagtactctacgtCtgagtgtcattttctcaatgggacggagcgggtgcggttcctggacagata
 cttctataaccaagaggagtacgtgcgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcgg
 cctaGcgccgagtactggaacagccagaaggacAtcctggaagaCaggcgggcccgcggtggacacctactgcagac
 15 acaactacggggttgtGgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~2-0-9~~2701) ;

DRB1*1313 :

cacgtttcttggagtactctacgtCtgagtgtcattttctcaatgggacggagcgggtgcggttcctggacagata
 cttctataaccaagaggagtacgtgcgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcgg
 cctaGcgccgagtactggaacagccagaaggacAtcctggaagacaggcggggcccTggtggacacctactgcagac
 20 acaactacggggttgtGgagagcttcacagtga (SEQ ID NO: ~~2-1-0~~2702) ;

DRB1*131401 :

tacgtctgagtgtcattttctcaatgggacggagcgggtgcggttcctggacagatacttctataaccaagaggag
 tAcgtgcgcttcgacagcgacgtgggggagtTccgggcggtgacggagctggggcggcctgatgccgagtactgga
 acagccagaaggacTtctggaGaCaggcgggcccgcggtggacacctactgcagacacactacggggttgtg (
 25 SEQ ID NO: ~~2-1-1~~2703) ;

DRB1*131402 :

cacgtttcttggagtactctacgtctgagtgtcattttctcaatgggacggagcgggtgcggttcctggacagata

cttctataaccaagaggagtacgtgcgcttcgacagcgacgtgggggagtTccgggcggtgacggagctggggcgg
cctgacgcTgagtactggaacagccagaaggacTtctggaaGAGaggcgggccggttgacacctactgcagac
acaactacggggttggtgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~2-1-2~~2704) ;

DRB1*1315 :

5 tttcttggagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggttcctggaGagatacttc
cataaccaggaggagaacgtgcgcttcgacagcgacgtgggggagtTccgggcggtgacggagctggggcggcctg
atgccgagtactggaacagccagaaggacatcctggaagacGAgcgggccggttgacacctactgcagacacaa
ctacggggttggtGgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~2-1-3~~2705) ;

DRB1*1316 :

10 ggagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggttcctggacagatacttccataac
caggaggagaacgtgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcctgatgccg
agtactggaacagccagaaggacatcctggaagacgagcgggccggttgacacctactgcagacacaactacgg
ggttgAtgagagcttcaca (SEQ ID NO: ~~2-1-4~~2706) ;

DRB1*1317 :

15 ggggacaccagaccacgtttcttggagtactctacgggtgagtgtTatttcttcaatgggacggagcgggtgcggt
tcctggacagatacttctataaccaagaggagtacgtgcgcttcgacagcgacgtgggggagttccgggcggtgac
ggagctggggcggcctgatgccgagtactggaacagccagaaggacatcctggaagacGAgcgggccggttgac
acctactgcagacacaactacggggttggtGgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~2-1-5~~
2707) ;

20 DRB1*1318 :

cacgtttcttggagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggttcctggacagata
cttccataaccaggaggagAacgtgcgcttcgacagcgacgtgggggagtTccgggcggtgacggagctggggcgg
cctgatgccgagtactggaacagccagaaggacTtctggaagacaggcggggcccTggttgacacctactgcagac
acaactacggggttggtGgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~2-1-6~~2708) ;

25 DRB1*1319 :

ggggacaccagaccacgtttcttggagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggt
tcctggaGagatacttccataaccaggaggagtTcgtgcgcttcgacagcgacgtgggggagtaccgggcggtgac

ggagctggggcggcctgatgccgagtactggaacagccagaaggacatcctggaagacGAgcggggccggtggac
acctactgcagacacaactacggggttgGgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~2-1-72709~~) ;

DRB1*1320 :

5 cagctttcttggagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggttcctggaGagata
cttcataaccaggaggagAAcgtgcgcttcgacagcgacgtgggggagtTccgggcggtgacggagctggggcgg
cctgatgccgagtactggaacagccagaaggacctcctggaagacGAgcggggccggtggacacctactgcagac
acaactacggggttgGgagagcttcacagtgcagcgg (SEQ ID NO: ~~2-1-82710~~) ;

DRB1*1321 :

10 ggggacaccagaccacgtttcttggagtactctacgtGtgagtgtcatttcttcaatgggacggagcgggtgcggt
tcctggacagatacttctataaccaagaggagtacgtgcgcttcgacagcgacgtgggggagtTccgggcggtgac
ggagctggggcggcctaGcgccgagtactggaacagccagaaggacTtcctggaagaGaggcggggccggtggac
acctactgcagacacaactacggggttggtgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~2-1-92711~~) ;

15 DRB1*1322 :

gaccacgtttcttggagtactctacgtGtgagtgtcatttcttcaatgggacggagcgggtgcggttcctggaGag
atacttctataaccaagaggagtAcgtgcgcttcgacagcgacgtgggggagtTccgggcggtgacggagctgggg
cggcctgatgccgagtactggaacagccagaaggacAtcctggaagacGAgcggggccggtggacacctactgca
gacacaactacggggttgGgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~2-2-02712~~) ;

20 DRB1*1323 :

cgtttcttggagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggttcctggacagatact
tctataaccaagaggagtacgtgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcggcc
tgatgccgagtactggaacagccagaaggacatcctggaagacGAgcggggccggtggacacctactgcagacac
aactacggggttggtgagagcttcacGgtgcagcggc (SEQ ID NO: ~~2-2-12713~~) ;

25 DRB1*1324 :

cgtttcttggagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggttcctggacagatact
tctataaccaagaggagtacgtgcgcttcgacagcgacgtgggggagtTccgggcggtgacggagctggggcggcc

tgatgccgagtactggaacagccagaaggacTtcctggaagacGAgcgggccggtggacacctactgcagacac
aactacggggttGgagagcttcacagtgcagcggc (SEQ ID NO: ~~2-2-2~~2714) ;

DRB1*1325 :

cacgtttcttggagtactCtaCgtCtgaGtgtcatttcttcaatgggacggagcgggtgcggttcctggaGagata
5 cttctataaccaagaggagtAcgtgcgcttcgacagcgacgtgggggagtTccgggcggtgacggagctggggcgg
cctgatgccgagtactggaacagccagaaggacctcctggaagaGaggcgggccggtggacacctactgcagac
acaactacggggttggtgaga (SEQ ID NO: ~~2-2-3~~2715) ;

DRB1*1326 :

cacgtttcttggagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggttcctggagagata
10 cttcCataaccaGgaggagAAcgtgcgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcgg
cctgacgcTgagtactggaacagccagaaggacTtcctggaaGaGaggcGgccggtggacacctactgcagac
acaactacggggttggtgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~2-2-4~~2716) ;

DRB1*1327 :

cacgtttcttggagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggtAcctggacagata
15 cttccataaccaggaggagaacgtgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcgg
cctgatgccgagtactggaacagccagaaggacatcctggaagacGAgcgggccggtggacacctactgcagac
acaactacggggttGgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~2-2-5~~2717) ;

DRB1*1328 :

ttggagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggttcctggacagataacttcata
20 accaggaggagaacgtgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcgccctgatgc
cgagtactggaacagccagaaggacatcctggaagacgagcgggccggtggacacctactgcagacacaactac
Ggggttggtgagagcttcac (SEQ ID NO: ~~2-2-6~~2718) ;

DRB1*1329 :

cacgtttcttggagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggttcctggaGagata
25 cttccataaccaggaggagAAcgtgcgcttcgacagcgacgtgggggagtTccgggcggtgacggagctggggcgg
cctgatgccgagtactggaacagccagaaggacctcctggaagacGAgcgggccggtggacacctactgcagac
acaactacggggttggtgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~2-2-7~~2719) ;

DRB1*1330 :

tttcttggagtactctacgtctgagtgatcatttcttcaatgggacggagcgggtgcggttcctggacagatacttc
tataaccaagaggagtacgtgcgcttcgacagcgacgtgggggagtTccgggcggtgacggagctggggcggccta
GcgccgagtactggaacagccagaaggacAtcctggaagaGaggcgggccggtggacacctactgcagacacaa
5 ctacggggttggtgagagcttcaca (SEQ ID NO: ~~2-2-8~~2720) ;

DRB1*1331 :

cacgtttcttggagtactctacgtctgagtgatcatttcttcaatgggacggagcgggtgcggttcctggacagata
cttcataaccaggaggagaacgtgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcgg
cctgTcgccgagtactggaacagccagaaggacAtcctggaagacGAgcgggccggtggacacctactgcagac
10 acaactacggggttggtgagagcttcacagtgcagcggcga (SEQ ID NO: ~~2-2-9~~2721) ;

DRB1*1332 :

cacgtttcttggagtactctacgtctgagtgatcatttcttcaatgggacggagcgggtgcggttcctggacagata
cttcataaccaggaggagAacgtgcgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcgg
cctaGcgccgagtactggaacagccagaaggacatcctggaagacGAgcgggccggtggacacctactgcagac
15 acaactacggggttggtGgagagcttcacagtgcagcggcga (SEQ ID NO: ~~2-3-0~~2722) ;

DRB1*1333 :

cacgtttcttggagtactctacgtctgagtgatcatttcttcaatgggacggagcgggtgcggttcctggacagata
cttctataaccaagaggagtacgtgcgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcgg
cctaGcgccgagtactggaacagccagaaggacatcctggaagaGaagcgggccggtggacaActactgcagac
20 acaactacggggttggtg (SEQ ID NO: ~~2-3-1~~2723) ;

DRB1*1334 :

cacgtttcttggagtactctacgtctgagtgatcatttcttcaatgggacggagcgggtgcggttcctggacagata
cttcataaccaggaggagaaacCtgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcgg
cctgatgccgagtactggaacagccagaaggacatcctggaagacGAgcgggccggtggacacctactgcagac
25 acaactacggggttggtgagagcttcacagtgcagcggcga (SEQ ID NO: ~~2-3-2~~2724) ;

DRB1*1335 :

cacgtttcttggagtactctacgtctgagtgatcatttcttcaatgggacggagcgggtgcggttcctggacagata

cttccataaccaggaggagaacgtgcgcttcgacagcgacgtgggggagttccTggcggtgacggagctggggcgg
cctgatgccgagtactggaacagccagaaggacatcctggaagacgagcgggcccgggtggacacctactgcagac
acaactacggggttggtgagagcttcacagtgcagcgg (SEQ ID NO: ~~2-3-3~~2725) ;

DRB1*1336 :

5 cacttttcttggagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggttcctggaGagata
cttccataaccaggaggagAAcgtgcgcttcgacagcgacgtgggggagtaccgggcccgtgacggagctggggcgg
cctgatgccgagtactggaacagccagaaggacAtcctggaagacGAgcgggcccgggtggacacctactgcagac
acaactacggggttggtgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~2-3-4~~2726) ;

DRB1*1337 :

10 cacttttcttggagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggttcctggacagata
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cctgatgccgagtactggaacagccagaaggacatcctggaagaCaAgcgggcccgggtggacacctactgcagac
acaactacggggttggtgagagcttcacGgtgcagcggcgga (SEQ ID NO: ~~2-3-5~~2727) ;

DRB1*1338 :

15 cacttttcttggagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggttcctggacagata
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cctaGcggcagagtactggaacagccagaaggacatcctggaagacGAgcgggcccgggtggacacctactgcagac
acaactacggggttggt (SEQ ID NO: ~~2-3-6~~2728) ;

DRB1*1339 :

20 cacttttcttggagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggttcctggacagata
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cctgatgccgagtCctggaacagccagaaggacAtcctggaagacGAgcgggcccgggtggacacctactgcagac
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DRB1*1340 :

25 ttggagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggttcctggaGagatacttccata
accaggaggagAAcgtgcgcttcgacagcgacgtgggggagtaccgggcccgtgacggagctggggcggcctgatgc
cgagtactggaacagccagaaggacAtcctggaagacGAgcgggcccgggtggacacctactgcagacacaactac

ggggttgtGgagagcttcacagtgcagcggcg (SEQ ID NO: ~~2-3-8~~2730) ;

DRB1*1341 :

cacgtttcttggagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggtAcctggacagata
 cttccataaccaggaggagaacgtgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcgg
 5 cctgatgccgagtactggaacagccagaaggacatcctggaagacGAgcgggccgcggtggacacctactgcagac
 acaactacggggttgtGgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~2-3-9~~2731) ;

DRB1*1342 :

cacgtttcttggagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggttctggacagata
 cttccataaccaggaggagAacgtgcgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcgg
 10 cctgatgccgagtactggaacagccagaaggacTtctggaagaGaggcgggccgcggtggacacctactgcagac
 acaactacggggttgtGgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~2-4-0~~2732) ;

DRB1*1343 :

cacgtttcttggagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggttctggacagata
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 15 cctgGtgcggagcactggaacagccagaaggacctcctggaagacGAgcgggccgcggtggacacctactgcagac
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DRB1*1344 :

cacgtttcttggagtactctacgtGtgaGtgtcatttcttcaatgggacggagcgggtgcggttctggaGagata
 cttctataaccaagaggagtAcgtgcgcttcgacagcgacgtgggggagTccgggcggtgacggagctggggcgg
 20 cctgatgccgagtactggaacagccagaaggacctcctggagcagaggcgggccgcggtggacacctactgcagac
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DRB1*1345 :

ttggagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggttctggacagatacttctata
 accaagaggagtacgtgcgcttcgacagcgacgtgggggagTccgggcggtgacggagctggggcggcctgGtgc
 25 ggagcactggaacagccagaaggacAtcctggaagacGAgcgggccgcggtggacacctactgcagacacaactac
 gggggttggtgagag (SEQ ID NO: ~~2-4-3~~2735) ;

DRB1*1346 :

cacgtttcttggagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggttctggacagata
 cttctataaccaagaggagtAcgtgcttctgacagcgacgtgggggagttccgggcggtgacggagctggggcgg
 cctgTCgccgagtactggaacagccagaaggacTtcttggaAgaCaggcgggccggtggacacctactgcagac
 acaactacggggttggtgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~2-4-4~~2736) ;

5 DRB1*1347 :

cacgtttcttggagtactctacgtGtgagtgtcatttcttcaatgggacggagcgggtgcggttctggacagata
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 cctgatgccgagtactggaacagccagaaggacTtcttggaagacaggcggggcccTggtggacacctactgcagac
 acaactacggggttggtgagagcttcacGgtgcagcggcgag (SEQ ID NO: ~~2-4-5~~2737) ;

10 DRB1*1348 ;

cacgtttcttggagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggttctggacagata
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 cctaGcgccgagtactggaacagccagaaggacatccttggaagacGAgcgggccggtggacacctactgcagac
 acaactacggggttggtgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~2-4-6~~2738) ;

15 DRB1*1349 :

cacgtttcttggagtactctacgtGtgagtgtcatttcttcaatgggacggagcgggtgcggttctggacagata
 cttctataaccaagaggagtacgtgcttctgacagcgacgtgggggagtaccgggcggtgacggagctggggcgg
 cctaGcgccgagtactggaacagccagaaggacTtcttggaagaCaggcgggccggtggacacctactgcagac
 acaactacggggttggtgagagcttcacagtgcagcgg (SEQ ID NO: ~~2-4-7~~2739) ;

20 DRB1*1350 :

cacgtttcttggagtactctacgtctgaGtggtcatttcttcaatgggacggagcgggtgcggttctggacagata
 cttctataaccaagaggagAacgtgcttctgacagcgacgtgggggagtTccgggcggtgacggagctggggcgg
 cctgatgccgagtactggaacagccagaaggacTtcttggaagaCaggcgggccggtggacacctactgcagac
 acaactacggggttggtgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~2-4-8~~2740) ;

25 DRB1*1351 :

cacgtttcttggagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggttctggacagata
 cttccataaccaggaggagaacgtgcttctgacagcgacgtgggggagttccgggcgTtgacggagctggggcgg

cctgatgccgagtacttgaacagccagaaggacatcctggaagacgagcgggcccgggtggacacctactgcagac
acaactacggggttgaggagcttcacagtgcagcggcgag (SEQ ID NO: ~~2-4-9~~2741) ;

DRB1*1352 :

cacgtttcttggagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggttcctggaGagata
5 cttccataaccaGgaggagtAcgtgcgcttcgacagcgacgtgggggagtTccgggcccgtgacggagctggggcgg
cctgatgccgagtacttgaacagccagaaggacAtcctggaagacGAgcgggcccgggtggacacctactgcagac
acaactacggggttgaggagcttcacagtgcagcggcgag (SEQ ID NO: ~~2-5-0~~2742) ;

DRB1*1353 :

cacgtttcttggagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggttcctggaGagata
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cctgatgccgagtacttgaacagccagaaggacatcctggaagacGAgcgggcccgggtggacacctactgcagac
acaactacggggttgaggagcttcacagtgcagcggcgag (SEQ ID NO: ~~2-5-1~~2743) ;

DRB1*1354 :

cacgtttcttggagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggttcctggacagata
15 cttctataaccaagaggagtacgtgcgcttcgacagcgacgtgggggagttccgggcccgtgacggagctggggcgg
cctgtcgccgagtCctggaacagccagaaggacttctggaagacGAgcgggcccgggtggacacctactgcagac
acaactacggggttgaggagcttcacagtgcagcggcgag (SEQ ID NO: ~~2-5-2~~2744) ;

DRB1*1355 :

tttcttggagtactctacgtCtgagtgtcatttcttcaatgggacggagcgggtgcggttcctggacagatacttc
20 tataaccaagaggagtacgtgcgcttcgacagcgacgtgggggagtaccgggcccgtgacggagctggggcggccta
gCgccgagtacttgaacagccagaaggacTtcctggaagacaggcgggcccTggtggacacctactgcagacacaa
ctacggggttggtgagagcttcacGgtgcagcggcgag (SEQ ID NO: ~~2-5-3~~2745) ;

DRB1*140101 :

atggtgtgtctgaggctccctggaggctcctgcatggcagTtctgacagtgcactgatggtgctgagctccccac
25 tggctttggctggggacaccagaccagtttcttggagtactctacgtCtgagtgtcatttcttcaatgggacgga
gcgggtgcggttcctggacagatacttccataaccaggaggagtctcgtgcgcttcgacagcgacgtgggggagtac
cgggcccgtgacggagctggggcggcctgctgcggagcactggaacagccagaaggacctcctggagcggaggcggg

ccgAggtggacacctaTtgcagacacaactacggggttgGgagagcttcacagtgcagcggcgag (SEQ ID
 NO: ~~2-5-4~~2746) ;

DRB1*140102 :

cacgtttcttgagtagTctacgtGtgagtgtcatttcttcaatgggacggagcgggtgcggttcctggacagata
 5 cttccataaccaggaggagttcgtgcgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcgg
 cctgGtgcgagcactggaacagccagaaggacctcctggagcggagcggggccgAggtggacacctactgcagac
 acaactacggggttgGg (SEQ ID NO: ~~2-5-5~~2747) ;

DRB1*1402 :

atggtgtgtctgaggctccctggaggctcctgcatggcagTtctgacagtgcactgatggtgctgagctccccac
 10 tggctttggctggggacaccagaccacgtttcttgagtactctacgtctgagtgtcatttcttcaatgggacgga
 gcgggtgcggttcctggagagatacttccataaccaGgaggagAAcgtgcgcttcgacagcgacgtgggggagtac
 cgggcggtgacggagctggggcggcctgatgccgagtactggaacagccagaaggacctcctggagcagaggcggg
 ccgcggtggacacctactgcagacacaactacggggttggtgagagcttcacagtgcagcggcgag (SEQ ID
 NO: ~~2-5-6~~2748) ;

15 DRB1*1403 :

atggtgtgtctgaggctccctggaggctcctgcatggcagTtctgacagtgcactgatggtgctgagctccccac
 tggctttggctggggacaccagaccacgtttcttgagtactctacgtctgagtgtcatttcttcaatgggacgga
 gcgggtgcggttcctggagagatacttccataaccaggaggagAACgtgcgcttcgacagcgacgtgggggagtac
 cgggcggtgacggagctggggcggcctgatgccgagtactggaacagccagaaggacctcctggaagacaggcggg
 20 cccTggtggacacctactgcagacacaactacggggttggtgagagcttcacagtgcagcggcgag (SEQ ID
 NO: ~~2-5-7~~2749) ;

DRB1*1404 :

atggtgtgtctgaggctccctggaggctcctgcatggcagTtctgacagtgcactgatggtgctgagctccccac
 tggctttggctggggacaccagaccacgtttcttgagtactctacgggtgagtgtTatttcttcaatgggacgga
 25 gcgggtgcggttcctggacagatacttccataaccaggaggagttcgtgcgcttcgacagcgacgtgggggagtac
 cgggcggtgacggagctggggcggcctgctgcggagcactggaacagccagaaggacctcctggagcggaggcggg
 ccgAggtggacacctaTtgcagacacaactacggggttgGgagagcttcacagtgcagcggcgag (SEQ ID

N0:~~2-5-8~~2750) ;

DRB1*140501 :

cacgtttcttggagtactctacgtctgagtgtcaAttcttcaatgggacggagcgggtgcggttctggacagata
 cttccataaccaggaggagttcgtgcgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcgg
 5 cctgatgcTgagtactggaacagccagaaggacctcctggagcggaggcgggccgaggtggacacctaTtgcagac
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DRB1*140502 :

cacgtttcttggagtactctacgtctgagtgtcaAttcttcaatgggacggagcgggtgcggttctggacagata
 cttccataaccaggaggagttcgtgcgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcgg
 10 cctgatgccgagtactggaacagccagaaggacctcctggagcggaggcgggccgaggtggacacctaTtgcagac
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DRB1*1406 :

cacgtttcttggagtactctaGgtctgagtgtcatttcttcaatgggacggagcgggtgcggttctggaGagata
 cttccataaccaggaggagAAcgtgcgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcgg
 15 cctgatgccgagtactggaacagccagaaggacctcctggagcagaggcgggccgaggtggacacctactgcagac
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DRB1*140701 :

cacgtttcttggagtaTctacgtGtgagtgtcatttcttcaatgggacggagcgggtgcggttctggacagata
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 20 cctgGtgaggagcactggaacagccagaaggacctcctggagcggaggcgggccgAggtggacacctaTtgcagac
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DRB1*140702 :

cacgtttcttggagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggttctggacagata
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 25 cctgGtgaggagcactggaacagccagaaggacctcctggagcggaggcgggccgaggtggacacctaTtgcagac
 acaactacggggttgtGgagagcttcacGgtgcagcggcgag (SEQ ID N0:~~2-6-3~~2755) ;

DRB1*1408 :

cacgtttcttgagtagTctacgtGtgagtgtcatttcttcaatgggacggagcgggtgcggttcctggacagata
 cttccataaccaggaggagttcgtgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcgg
 cctgatgaggagGactggaacagccagaaggacctcctggagcggagcggggccgAggtggacacctaTtgagac
 acaactacggggttgtGgagagcttcacagtgcagcggcga (SEQ ID NO: ~~2-6-4~~2756) ;

5 DRB1*1409 :

tttcttgagtagtactctaGgtctgaGtgatcatttcttcaatgggacggagcgggtgcggttcctggaGagatacttc
 CataaccaGgaggagAacgtgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcggcctg
 atgccgagtactggaacagccagaaggacctcctggagcagaggcggggccgcggtggacacctactgcagacaca
 ctacggggttgtGgagagcttcacagtgcagcggcga (SEQ ID NO: ~~2-6-5~~2757) ;

10 DRB1*1410 :

ttcttgagcagggttaaacAtgagtgtcatttcttcaatgggacggagcgggtgcggttcctggacagatacttcc
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 tgggagcactggaacagccagaaggacctcctggagcggagcggggccgAggtggacacctaTtgagacacaac
 tacggggttgtGgagagcttcacagtgcagcgg (SEQ ID NO: ~~2-6-6~~2758) ;

15 DRB1*1411 :

gagtactctacgggtgagtgTatttcttcaatgggacggagcgggtgcggttcctggacagatacttcataacc
 aggaggagttcgtgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcggcctgatGAGga
 gtactggaacagccagaaggacctcctggagcggagcggggccgAggtggacacctaTtgagacacaactacggg
 gttgtGg (SEQ ID NO: ~~2-6-7~~2759) ;

20 DRB1*1412 :

gtctgagtgtcatttcttcaatgggacggagcgggtgcggttcctggaGagatacttcataaccaggaggagAAc
 gtgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcggcctgatgccgagtactggaaca
 gccagaaggacctcctggaagacaggcggggcccTggtggacacctactgcagacacaactacggggttgtGg (SEQ
 ID NO: ~~2-6-8~~2760) ;

25 DRB1*1413 :

gagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggttcctggaGagatacttcataacc
 aggaggagAACgtgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcggcctaGcgccga

gtactggaacagccagaaggacctcctggagcagaggcgggccggtggacacactactgcagacacaactacggg
gttggtg (SEQ ID NO: ~~2-6-9~~2761) ;

DRB1*1414 :

ttcttgagtagtactctacgtCtgagtgtcatttcttcaatgggacggagcgggtgcggttcctggacagatacttcc
5 ataaccaggaggagtTcgtgcgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcgccctga
tgccgagtactggaacagccagaaggacctcctggagcggaggcgggccgAggtggacacctaTtgacagacacaac
tacggggttggtgagagcttcacagtg (SEQ ID NO: ~~2-7-0~~2762) ;

DRB1*1415 :

ctctacgggtgagtgtTatttcttcaatgggacggagcgggtgcggttcctggacagatacttccataaccaggag
10 gagtTcgtgcgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcgccctgatgccgagtact
ggaacagccagaaggacTtcctggaagacaggcggggcccTggtggacacactactgcagacacaactacggggttgt
Ggagagcttcacagtgcag (SEQ ID NO: ~~2-7-1~~2763) ;

DRB1*1416 :

ttggagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggttcctggacagatacttccata
15 accaggaggagttcgtgcgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcgccctgCtgc
ggagcactggaacagccagaaggacAtcctggaagacGAgcggggccgcggtggacacactactgcagacacaactac
ggggttgtGgag (SEQ ID NO: ~~2-7-2~~2764) ;

DRB1*1417 :

cacgtttcttgagtagtactctacgtctgaGtggtcatttcttcaatgggacggagcgggtgcggttcctggaGagata
20 cttcCataaccaggaggagAacgtgcgcttcgacagcgacgtgggggagtTccgggcggtgacggagctggggcgcc
cctgatgccgagtactggaacagccagaaggacctcctggagcagaggcgggccggtggacacactactgcagac
acaactacggggttgtGgagagcttcacagtgcagcgg (SEQ ID NO: ~~2-7-3~~2765) ;

DRB1*1418 :

gagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggttcctggagagatacttccataacc
25 aggaggagAAcgtgcgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcgccctgatgcTga
gtactggaacagccagaaggacctcctggagcggaggcgggccgAggtggacacctaTtgacagacacaactacggg
gttgtGgagagcttcacagtgcagcggcga (SEQ ID NO: ~~2-7-4~~2766) ;

DRB1*1419 :

ggggacaccagaccacgtttcttggAgtactctaGgtctgagtgatcatttcttcaatgggacggagcgggtgcggt
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 ggagctggggcggcctgatgccgagtactggaacagccagaaggacctcctggagcagaAgcgggcccggtggac
 5 acctactgcagacacaactacggggttggtgagagcttcaca (SEQ ID NO: ~~2-7-5~~2767) ;

DRB1*1420 :

ttggagtactctacgtGtgagtgatcatttcttcaatgggacggagcgggtgcggttGctggaGagatacttccata
 accaggaggagtTcgtgcgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcggcctgatgc
 cgagtactggaacagccagaaggacctcctggagcagaggcgggccggtggacacctactgcagacacaactac
 10 ggggttgtGgaga (SEQ ID NO: ~~2-7-6~~2768) ;

DRB1*1421 :

ttggagtactctacgtctgagtgatcatttcttcaatgggacggagcgggtgcggttcctggaGagatacttcGata
 accaggaggagAACgtgcgcttcgacagcgacgtgggggagtTccgggcggtgacggagctggggcggcctgatgc
 cgagtactggaacagccagaaggacctcctggagcagaAgcgggcccggtggacacctactgcagacacaactac
 15 ggggttgtGgaga (SEQ ID NO: ~~2-7-7~~2769) ;

DRB1*1422 :

cacgtttcttggagtactctacgtctgagtgatcatttcttcaatgggacggagcgggtgcggttcctggacagata
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 cctgGtgcggagGactggaacagccagaaggacTtctggaAgaGaggcgggccggtggacacctactgcagac
 20 acaactacggggttggtagagcttcacagtgcagcggcgag (SEQ ID NO: ~~2-7-8~~2770) ;

DRB1*1423 :

cacgtttcttggagtacTctacgtGtgagtgatcatttcttcaatgggacggagcgggtgcggttcctggacagata
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 cctgatgccgagtactggaacagccagaaggacctcctggagcggaggcgggccgAggtggacacctatTgcagac
 25 acaactacggggttggtagagcttcacagtgcagcggcgag (SEQ ID NO: ~~2-7-9~~2771) ;

DRB1*1424 :

ttcttggagtactctacgtctgagtgatcatttcttcaatgggacggagcgggtgcggttcctggaGagatacttcc

ataaccaGgaggagAAcgtgcgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcggcctga
tgccgagtactggaacagccagaaggacAtcctggagcagGcggggccggtggacacctactgcagacacaa
tacggggttggtgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~2-8-0~~2772) ;

DRB1*1425 :

5 tttcttgagtactctacgtCtgagtgtcatttcttcaatgggacggagcgggtgcggttcctggacagatacttc
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CtgcgagCactggaacagccagaaggacTtcctggaAgaCaggcgggcccgggtggacacctactgcagacacaa
ctacggggttggtgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~2-8-1~~2773) ;

DRB1*1426 :

10 cacgtttcttgagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcAgttcctggacagata
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cctgctgcggagcactggaacagccagaaggacctcctggagcggaggcgggcccagggtggacacctattgcagac
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DRB1*1427 :

15 cacgtttcttgagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggttcctggaGagata
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cctgatgccgagtactggaacagccagaaggacTtcctggaagaCaggcgggcccTgggtggacacctactgcagac
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DRB1*1428 :

20 cacgtttcttgagtactctacgggtgagtgttatttcttcaatgggacggagcgggtgcggttcctggacagata
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cctgCtgcgagcactggaacagccagaaggacctcctggagcggaggcgggcccagggtggacacctattgcagac
acaactacggggCtgtGgagagcttcaca (SEQ ID NO: ~~2-8-4~~2776) ;

DRB1*1429 :

25 cacgtttcttgagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggttcctggaGagata
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cctgatgccgagtactggaacagccagaaggacctcctggagcagaggcgggcccgggtggacacctactgcagac

acaactacggggCgtgtggagagcttcacagtgcagcggcgag (SEQ ID NO: ~~2-8-5~~2777) ;

DRB1*1430 :

tttcttgagtagtactctacgtctgaGtgtcatttcttcaatgggacggagcgggtgcggttcctggaCagatacttc
CataaccaGgaggagAacgtgcgcttcgacagcgacgtgggggagtTccgggcggtagcggagctggggcgccctg
5 atgccgagtactggaacagccagaaggacctcctggagcagaggcgggccggtggacacctactgcagacacaa
ctacggggttgtGgagagcttcaca (SEQ ID NO: ~~2-8-6~~2778) ;

DRB1*1431 :

tttcttgagtagtactctacgggtgagtgtTatttcttcaatgggacggagcgggtgcggttcctggacagatacttc
cataaccaggaggagtctcgtgcgcttcgacagcgacgtgggggagtaccgggcggtagcggagctggggcgccctg
10 CtgccgagcactggaacagccagaaggacctcctggagcggaggcgggccggtggacacctatTgcagacacaa
ctacggggttgtGgagagcttcaca (SEQ ID NO: ~~2-8-7~~2779) ;

DRB1*1432 :

cacgtttcttgagtagtTctacgtCtgagtgtcatttcttcaatgggacggagcgggtgcggttcctggacagata
cttccataaccaggaggagtctcgtgcgcttcgacagcgacgtgggggagtaccgggcggtagcggagctggggcgcc
15 cctgCtgccgagcactggaacagccagaaggacctcctggagcGgaggcgggccggtggacacctactgcagac
acaactacggggttgtGgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~2-8-8~~2780) ;

DRB1*1433 :

ttggagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggttcctggacagatacttccata
accaggaggagaAcgtgcgcttcgacagcgacgtgggggagtTccgggcggtagcggagctggggcgccctgatgc
20 cgagtactggaacagccagaaggacctcctggagcagaggcgggccgAggtggacacctactgcagacacaaactac
ggggttgtGgagagcttcacagtgcagcggc (SEQ ID NO: ~~2-8-9~~2781) ;

DRB1*1434 :

cacgtttcttgagtagtTctacgtCtgagtgtcatttcttcaatgggacggagcgggtgcggttcctggacagata
cttccataaccaggaggagtctcgtgcgcttcgacagcgacgtgggggagtaccgggcggtagcggagctggggcgcc
25 cctgatgcggagCactggaacagccagaaggacctcctggagcggaggcgggccggtggacacctatTgcagac
acaactacggggttgtGgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~2-9-0~~2782) ;

DRB1*1435 :

cacgtttcttggagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggttctggacagata
 cttccataaccaggaggagttcgtgcttcgacagcgacgtgggggagtTccgggcggtgacggagctggggcgg
 cctgCtgcgggagcactggaacagccagaaggacctcctggagcggaggcgggcccAggtggacacctaTtgcagac
 acaactacggggttgtGgagagcttcacagtgcagcgg (SEQ ID NO: ~~2-9-1~~2783) ;

5 DRB1*1436 :

cacgtttcttggagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggttctggacagata
 cttccataaccaggaggagttcgtgcttcgacagcgacgtGgggagtaccgggcggtgacggagctggggcgg
 cctgatgccgagtactggaacagccagaaggacctcctggagcggaggcgggcccagggtggacacctaTtgcagac
 acaactacggggttgtGgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~2-9-2~~2784) ;

10 DRB1*1437 :

cacgtttcttggagtactctacgtctgagtgtcaAttcttcaatgggacggagcgggtgcggttctggacagata
 cttccataaccaggaggagttcgtgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcgg
 cctgatgctgagtactggaacagccagaaggacatcctggagcaggGcgggcccgggtggacacctaTtgcagac
 acaactacggggttgtGgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~2-9-3~~2785) ;

15 DRB1*1438 :

cacgtttcttggagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggttctggacagata
 cttccataaccaggaggagttcgtgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcgg
 cctgCtgcgggagcactggaacagccagaaggacctcctggagcggaggcgggcccagggtggacaaTtactgcagac
 acaactacggggttgtGgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~2-9-4~~2786) ;

20 DRB1*1439 :

cacgtttcttggagtaccctacgtCtgagtgtcatttcttcaatgggacggagcgggtgcggttctggacagata
 cttccataaccaggaggagttcgtgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcgg
 cctgCtgcgggagcactggaacagccagaaggacctcctggagcggaggcgggcccAggtggacacctaTtgcagac
 acaactacggggttgtGgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~2-9-5~~2787) ;

25 DRB1*1440 :

cacgtttcttggagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggttctggaGagata
 cttccataaccaggaggagtTcgtgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcgg

cctgatgccgagtactggaacagccagaaggacctcctggaagaCaggcggggccCTggtggacacctactgcagac
acaactacggggttggtgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~2-9-6~~2788) ;

DRB1*1441 :

cacgtttcttggagtactctcCgtCtgagtgtcatttcttcaatgggacggagcgggtgcggttCctggaGagata
5 cttccataaccaggaggagtTcCtgcgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcgg
cctgatgccgagtactggaacagccagaaggacctcctggagcagaggcggggccgcggtggacacctactgcagac
acaactacggggttggtgagagcttcacagtgcagcggcgga (SEQ ID NO: ~~2-9-7~~2789) ;

DRB1*1442 :

cacgtttcttggagtactctacgtctgagtgtcatttcttcaatgggacggagcgggtgcggttcctggacagata
10 cttctataaccaagaggagtAcgtgcgcttcgacagcgacgtgggggagtTccgggcggtgacggagctggggcgg
cctgatgccgagtactggaacagccagaaggacctcctggagcggaggcggggccgAggtggacacctatTgcagac
acaactacggggttggtgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~2-9-8~~2790) ;

DRB1*1443 :

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15 cttccataaccaggaggagttcgtgcgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcgg
cctgatgctgagtactggaacagccagaaggacctcctggagcggaggcggggccgagggtggacGcctattgcagac
acaactacggggttggtgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~2-9-9~~2791) ;

DRB1*1444 :

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20 cttccataaccaggaggagttcgtgcgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcgg
cctgatgcTgagtactggaacagccagaaggacctcctggagcggaggcggggccgagggtggacacctatTgcagac
acaactacggggttggtgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~3-0-0~~2792) ;

DRB1*1445 :

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25 cttccataaccaggaggagttcgtgcgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcgg
cctgatgctgagtactggaacagccagaaggacAtcctggagcggaggcggggccgagggtggacacctatTgcagac
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DRB1*150101 :

atgggtgtgtctgaagctccctggaggctcctgcatgacagcgctgacagtgacactgatgggtgtgagctccccac
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 gcgggtgcggttcctggacagatacttctataaccaggaggagtccgtgcttcgacagcgacgtgggggagttc
 5 cgggcggtgacggagctggggcggcctgacgctgagtactggaacagccagaaggacatcctggagcaggcgcggg
 ccgcggtggacacctactgcagacacaactacggggttgtagagccttcacagtgcagcggcgag (SEQ ID
 NO: ~~3-O-2~~2794) ;

DRB1*150102 :

cacgtttcctgtggcagcctaagaggaggagtgtcattttcttcaatgggacggagcgggtgcggttcctggacagata
 10 cttctataaccaggaggagtccgtgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcgg
 cctgacgctgagtactggaacagccagaaggacatcctggagcaggcgcgggccgcggtggacacctactgcagac
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DRB1*150103 :

cacgtttcctgtggcagcctaagagGgagtgtcattttcttcaatgggacggagcgggtgcggttcctggacagata
 15 cttctataaccaggaggagtccgtgcttcgacagcgacgtgggggagttccgggcggtgacggagctggggcgg
 cctgacgctgagtactggaacagccagaaggacatcctggagcaggcgcgggccgcggtggacacctaTtgacagac
 acaactacggggttgGgagagcttcacagtgcagcgg (SEQ ID NO: ~~3-O-4~~2796) ;

DRB1*150104 :

cacgtttcctgtggcagcctaagagGgagtgtcattttcttcaatgggacggagcgggtgcggttcctggacagata
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 cctgatgccgagtactggaacagccagaaggacAtcctggagcaggGcgggccgcggtggacacctactgcagac
 acaactacggggttgGgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~3-O-5~~2797) ;

DRB1*150201 :

ggggacacccgaccacgtttcctgtggcagcctaagagGgagtgtcattttcttcaatgggacggagcgggtgcggt
 25 tcctggacagatacttctataaccaggaggagtccgtgcttcgacagcgacgtgggggagTccgggcggtgac
 ggagctggggcggcctgacgcTgagtactggaacagccagaaggacAtcctggagcaggGcgggccgcggtggac
 acctactgcagacacaactacggggttggtgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~3-O-6~~

2798) ;

DRB1*150202 :

gagtgtcattttcttcaatgggacggagcgggtgcggttcctggacagatacttctataaccaggaggagtccgtgc
gcttcgacagcgacgtgggggagtTccgggcgggtgacggagctggggcgccctgatgccgagtactggaacagcca
5 gaaggacAtcctggagcagGgcgggccgcggtggacacctactgcagacacaactacggggttggtg (SEQ ID
NO: ~~3-0-7~~2799) ;

DRB1*150203 :

cacgtttcctgtggcagcctaagagggagtgtcattttcttcaatgggacggagcgggtgcggttcctggacagata
cttctataaTcaggaggagtccgtgcgcttcgacagcgacgtgggggagttccgggcgggtgacggagctggggcgg
10 cctgacgctgagtactggaacagccagaaggacatcctggagcaggcgccggccggtggacacctactgcagac
acaactacggggttggtg (SEQ ID NO: ~~3-0-8~~2800) ;

DRB1*1503 :

ggggacacccgaccacgtttcctgtggcagcctaagagGgagtgtcattttcttcaatgggacggagcgggtgcggt
tcctggacagaCacttctataaccaggaggagtccgtgcgcttcgacagcgacgtgggggagtTccgggcgggtgac
15 ggagctggggcggcctgacgcTgagtactggaacagccagaaggacAtcctggagcaggGgcgggccgcggtggac
acctactgcagacacaactacggggttggtGgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~3-0-9~~
2801) ;

DRB1*1504 :

ttcctgtggcagcctaagagGgagtgtcattttcttcaatgggacggagcgggtgcggttcctggacagatacttct
20 ataaccaggaggagtccgtgcgcttcgacagcgacgtgggggagttccgggcgggtgacggagctggggcggcctga
cgctgagtactggaacagccagaaggacTtcctggagcaggGgcgggccgcggtggacacctactgcagacacaac
tacggggttggtGgagagcttcacagtg (SEQ ID NO: ~~3-1-0~~2802) ;

DRB1*1505 :

ttcctgtggcagcctaagagGgagtgtcattttcttcaatgggacggagcgggtgcggttcctggacagatacttct
25 ataaccaggaggagtccgtgcgcttcgacagcgacgtgggggagttccgggcgggtgacggagctggggcggcctga
cgcTgagtactggaacagccagaaggacctcctggagcaggGgcgggccgcggtggacacctactgcagacacaac
tacggggttggtGgagagcttcacagtgcagcgg (SEQ ID NO: ~~3-1-1~~2803) ;

DRB1*1506 :

ctgtggcagcctaagagggagtgatcatttcttcaatgggacggagcgggtgcggttcctggacagatacttctata
accaggaggagtgccgtgcgcttcgacagcgacgtgggggagttccgggcggGgacggagctggggcggcctgacgc
tgagtactggaacagccagaaggacatcctggagcaggcgccggccggtggacacctactgcagacacaactac
5 ggggttgtggagagcttcacagtgcagcggcgag (SEQ ID NO: ~~3-1-2~~2804) ;

DRB1*1507 :

tttctgtggcagcctaagagGgagtgatcatttcttcaatgggacggagcgggtgcggttcctggacagatacttc
tataaccaggaggagtgccgtgcgcttcgacagcgacgtgggggagtaccgggcgggtgacggagctggggcggcctg
acgcTgagtactggaacagccagaaggacAtcctggagcaggGgcgggccggtggacacctactgcagacacaa
10 ctacggggttgtGgagagc (SEQ ID NO: ~~3-1-3~~2805) ;

DRB1*1508 :

cacgtttcctgtggcagcctaagagggagtgatcatttcttcaatgggacggagcgggtgcggttcctggacagata
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cctgacgctgagtactggaacagccagaagAacatcctggagcaggcgccggccggtggacacctactgcagac
15 acaactacggggttgtgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~3-1-4~~2806) ;

DRB1*1509 :

cacgtttcctgtggcagcctaagagggagtgatcatttcttcaatgggacggagcgggtgcggttcctggacagata
cttctataaccaggaggagtgccgtgcgcttcgacagcgacgtgggggagttccAggcgggtgacggagctggggcgg
cctgacgctgagtactggaacagccagaaggacatcctggagcaggGgcgggccggtggacacctactgcagac
20 acaactacggggttgtggagagcttcacagtgcagcggcgag (SEQ ID NO: ~~3-1-5~~2807) ;

DRB1*1510 :

gtttcctgtggcagcctaagagGgagtgatcatttcttcaatgggacggagcgggtgcggttcctggacagatactt
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gacgctgagtactggaacagccagaaggacatcctggaagacgAgcgggccggtggacacctactgcagacaca
25 actacggggttgtGgagagc (SEQ ID NO: ~~3-1-6~~2808) ;

DRB1*1511 :

cacgtttcctgtggcagcctaagagGgagtgatcatttcttcaatgggacggagcgggtgcggttcctggacagata

cttctataaccaggaggagtccgtgcgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcgg
cctgacgcTgagtactggaacagccagaaggacAtcctggagcaggGcgggccgcggtggacacctactgcagac
acaactacggggttggtgagagcttcacagtgcagcgcgag (SEQ ID NO: ~~3-1-7~~2809) ;

DRB1*1512 :

5 gcacgtttcctgtggcagcctaagagGgagtgtcatttcttcaatgggacggagcgggtgcggttcctggacagat
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gcctaGcgccgagtactggaacagccagaaggacAtcctggagcaggGcgggccgcggtggacacctactgcaga
cacaactacggggttggtGgagagcttcacagtgcagcgcgag (SEQ ID NO: ~~3-1-8~~2810) ;

DRB1*1513 :

10 cacgtttcctgtggcagcctaagagGgagtgtcatttcttcaatgggacggagcgggtgcggttcctggacagata
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cctgacgcTgagtactggaacagcca...ggacAtcctggagcaggGcgggccgcggtggacacctactgcagac
acaactacggggttggtGgagagcttcacagtgcagcg (SEQ ID NO: ~~3-1-9~~2811) ;

DRB1*160101 :

15 atgggtgtgtctgaagctccctggaggctcctgcatgacagcgctgacagtgcactgatgggtgctgagctccccac
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gcgggtgcggttcctggacagatacttctataaccaggaggagtccgtgcgcttcgacagcgacgtgggggagtac
cgggcggtgacggagctggggcggcctgacgctgagtactggaacagccagaaggacTtcttgaagacaggcgGg
ccgcggtggacacctactgcagacacaactacggggttggtgagagcttcacagtgcagcgcgag (SEQ ID

20 NO: ~~3-2-0~~2812) ;

DRB1*160102 :

cgtttcctgtggcagcctaagagGgagtgtcatttcttcaatgggacggagcgggtgcggttcctggacagatact
tctataaccaggaggagtccgtgcgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcggcc
tgacgctgagtactggaacagccagaaggacTtcttgaagaGaggcgggccgcggtggacacctactgcagacac
25 aactacggggttggtgagagcttcaca (SEQ ID NO: ~~3-2-1~~2813) ;

DRB1*160201 :

atgggtgtgtctgaagctccctggaggctcctgcatgacagcgctgacagtgcactgatgggtgctgagctccccac

tggctttggctggggacacccgaccacgtttcctgtggcagcctaagagGgagtgtcattttcttcaatgggacgga
gcgggtgcggttcctggacagatacttctataaccaggaggagtccgtgcgcttcgacagcgacgtgggggagtac
cgggcggtgacggagctggggcggcctgacgctgagtactggaacagccagaaggacctcctggaagacaggcgGg
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5 NO: ~~3-2-2~~2814) ;

DRB1*160202 :

tttcctgtggcagcctaagagGgagtgtcattttcttcaatgggacggagcgggtgcggttcctggacagatacttc
tataaccaggaggagtccgtgcgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcggcctg
acgctgagtactggaacagccagaaggacctcctggaagaGaggcgggccggtggacacctactgcagacacaa
10 ctacggggttggtg (SEQ ID NO: ~~3-2-3~~2815) ;

DRB1*1603 :

atggtgtgtctgaagctccctggaggctcctgcatgacagcgctgacagtgacactgatggtgctgagctccccac
tggctttggctggggacacccgaccacgtttcctgtggcagcctaagaggagtgatcattttcttcaatgggacgga
gcgggtgcggttcctggacagatacttctataaccaggaggagtccgtgcgcttcgacagcgacgtgggggagtac
15 cgggcggtgacggagctggggcggcctgacgctgagtactggaacagccagaaggacttcctggaagacaggcgGg
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NO: ~~3-2-4~~2816) ;

DRB1*1604 :

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20 aGgaggagtccgtgcgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcggcctgacgcTga
gtactggaacagccagaaggacTtcctggaagaGaggcgggccGTggtggacacctactgcagacacaactacggg
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DRB1*1605 :

ctgtggcagcctaagagGgagtgtcattttcttcaatgggacggagcgggtgcggttcctggacagatacttctata
25 accaggaggagtccgtgcgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcggcctgacgc
tgagtactggaacagccagaaggacAtcctggaagacaggcgGgccggtggacacctactgcagacacaactac
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DRB1*1607 :

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 cctgacgctgagtactggaacagccagaaggacatcctggaagacaggcgcgcgcgggtggacacctactgcagac
 5 acaactacggggttggtgagagcttcacagtgc (SEQ ID NO: ~~3-2-7~~2819) ;

DRB1*1608 :

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 cctgacgctgagtactggaacagccagaaggacTtctggaagacaggcgcgcgcgggtggacacctactgcagac
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DRB3*010101 :

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 ggagctggggcggcctgtGcccgagtcctggaacagccagaaggacctcctggagcagaagcggggccGggtggac
 15 aaTtactgcagacacaactacggggttggtgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~3-2-9~~
2821) ;

DRB3*01010201 :

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 20 gcgggtgcggtacctggacagatacttccataaccaggaggagttcctgcgcttcgacagcgacgtgggggagtag
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 NO: ~~3-3-0~~2822) ;

DRB3*010103 :

ggggacacccgaccacgtttcttgagctgcGtaagtctgagtgatcatttcttcaatgggacggagcgggtgcggt
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 25 ggagctggggcggcctgttgccgagtcctggaacagccagaaggacctcctggagcagaagcggggccGggtggac

aaTtactgcagacacaaactacggggttggtgagagc (SEQ ID NO: ~~3-3-1~~ 2823) ;

DRB3*010104 :

cacgtttcttgagctgcgtaagtctgagtgtcatttcttcaatgggacggagcgggtgcggtacctggacagata

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5 cctgtcgcgagtcctggaacagccagaaggacctcctggagcagaagcggggccgggtggacaaTtactgcagac

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DRB3*0102 :

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10 ggagctggggcggcctgtGgccgagtcctggaacagccagaaggacctcctggagcagaagcggggccGggtggac

aaTtactgcagacacaaactacggggttggtgagagc (SEQ ID NO: ~~3-3-3~~ 2825) ;

DRB3*0103 :

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15 cctgtGgccgagtcctggaacagccagaaggacctcctggagcagaagcggggccGggtggacaaTtactgcagac

acaactacggggttggtgagagc (SEQ ID NO: ~~3-3-4~~ 2826) ;

DRB3*0104 :

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20 cctgtGgccgagtcctggaacagccagaaggacctcctggagcagaagcggggccGggtggacaaTtactgcagac

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DRB3*0105 :

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cttcataaccaggaggagttcctgcgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcgg

25 cctgtcgcgagtcctggaacagccagaaggacctcctggagcagaagcggggccgggtggacaaTtactgcagac

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DRB3*0106 :

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 cttccataaccaggaggagtTcgtgcgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcgg
 cctgtGgccgagtcctggaacagccagaaggacctcctggagcagaagcggggccGggtggacaaTtactgcagac
 acaactacggggttggtg (SEQ ID NO: ~~3-3-7~~2829) ;

5 DRB3*0107 :

cacgtttcttggagctgcGtaagtctgagtgtcatttcttcaatgggacggagcgggtgcggtacctggacagata
 cttccataaccaggaggagtacgcgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcgg
 cctgatgccgagtactggaacagccagaaggacctcctggagcagaAgcggggccAggtggacaaTtactgcagac
 acaactacggggttggtg (SEQ ID NO: ~~3-3-8~~2830) ;

10 DRB3*0108 :

cacgtttcttggagctgcGtaagtctgagtgtcatttcttcaatgggacggagcgggtgcggtacctggacagata
 cttccataaccaggaggagAACgtgcgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcgg
 cctgtGgccgagtcctggaacagccagaaggacctcctggagcagaagcggggccGggtggacaaTtactgcagac
 acaactacggggttggtgagagcttcacagtgcagcgg (SEQ ID NO: ~~3-3-9~~2831) ;

15 DRB3*0109 :

cacgtttcttggagctgcGtaagtctgagtgtcatttcttcaatgggacggagcgggtgcggtacctggagagaca
 cttccataaccaggaggagtacGgcgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcgg
 cctgtGgccgagtcctggaacagccagaaggacctcctggagcagaagcggggccGggtggacaaTtactgcagac
 acaactacggggttggtgagagcttcacagtgcagcgg (SEQ ID NO: ~~3-4-0~~2832) ;

20 DRB3*0110 :

cacgtttcttggagctgcGtaagtctgagtgtcatttcttcaatgggacggagcgggtgcggtacctggacagata
 cttccataaccaggaggagttcctgAgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcgg
 cctgtcgccgagtcctggaacagccagaaggacctcctggagcagaagcggggccgggtggacaattactgcagac
 acaactacggggttggtg (SEQ ID NO: ~~3-4-1~~2833) ;

25 DRB3*0201 :

atggtgtgtctgaagctccctggaggctccagcttggcagcgttgacagtgcactgatggtgctgagctcccgac
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gcgggtgcggttcctggagagacacttccataaccaggaggagtacgcgccttcgacagcgacgtgggggagtag
 cgggcggtgagggagctggggcggcctgatgccgagtactggaacagccagaaggacctcctggagcagaagcggg
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 NO: ~~3-4-2~~2834) ;

5 DRB3*020201 :

ggggacacccgaccacgtttcttgGagctgcttaagtctgagtgtcatttcttcaatgggacggagcgggtgcggt
 tcctggagagaGacttccataaccaggaggagtacgGgcgccttcgacagcgacgtgggggagtagccggcggtgaG
 ggagctggggcggcctgatgccgagtactggaacagccagaaggacctcctggagcagaagcggggccaggtggac
 aaTtactgcagacacaactacggggttgtagagagcttcacagtgcagcggcgag (SEQ ID NO: ~~3-4-3~~

10 2835) ;

DRB3*020202 :

cacgtttcttgagctgcttaagtctgagtgtcatttcttcaatgggacggagcgggtgcggttcctggagagaGa
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 cctgatgccgagtactggaacagccagaaggacctcctggagcagaagcggggccAggtggacaActactgcagac
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15

DRB3*020203 :

cacgtttcttgagctgcttaagtctgagtgtcatttcttcaatgggacggagcgggtgcggttcctggagagaca
 cttccataaccaggaggagtacgcgccttcgacagcgacgtgggggagtagccggcggtgagggagctggggcgg
 cctgatgccgagtactggaacagccagaaggacctcctggagcagaagcggggccaggtggacaattactgcagGc
 acaactacggggttggtgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~3-4-5~~2837) ;

20

DRB3*020204 :

cacgtttcttgagctgcttaagtctgagtgtcatttcttcaatgggacggagcgggtgcggttcctggagagaca
 cttccataaccaggaggagtacgcgccttcgacagcgacgtgggggagtagccggcggtgaGggagctggggcgg
 cctgatgcGgagtactggaacagccagaaggacctcctggagcagaagcggggccaggtggacaaTtactgcagac
 acaactacggggttggtgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~3-4-6~~2838) ;

25

DRB3*0203 :

ttggagctgcttaagtctgagtgtcatttcttcaatgggacggagcgggtgcggttcctggagagaGacttccata

accaGgaggagtccgtgcgcttcgacagcgacgtgggggagtagccggcggtgaGggagctggggcgccctgatgc
cgagtactggaacagccagaaggacctcctggagcagaagcggggccaggtggacaaTtactgcagacacaactac
ggggttggtgaga (SEQ ID NO: ~~3-4-7~~2839) ;

DRB3*0204 :

5 cacttttcttggagctgcttaagtctgagtgtcatttcttcaatgggacggagcgggtgcggttcctggagagaca
cttcataaccaggaggagtacgcgcgttcgacagcgacgtgggggagtagccggcggtgaGggagctggggcgcc
cctgatgccgagtactggaacagccagaaggacctcctggagcagaagcggggccGggtggacaActactgcagac
acaactacggggttgGgagagcttcacagtgcagcgcgag (SEQ ID NO: ~~3-4-8~~2840) ;

DRB3*0205 :

10 cgtttcttggagctgcttaagtctgagtgtcatttcttcaatgggacggagcgggtgcggttcctggaGagatact
tcataaccaggaggagtacGgcgcttcgacagcgacgtgggggagtagccggcggtgaGggagctggggcgcc
tgatgccgagtactggaacagccagaaggacctcctggagcagaagcggggccaggtggacaaTtactgcagacac
aactacggggttggtgagagcttcacagtgcag (SEQ ID NO: ~~3-4-9~~2841) ;

DRB3*0206 :

15 cacttttcttggagctgcttaagtctgagtgtcatttcttcaatgggacggagcgggtgcggttcctggagagaca
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cctgatgccgagtactggaacagccagaaggacctcctggagcagaagcggggccaggtggacaaTtactgcagac
acaactacggggttggtg (SEQ ID NO: ~~3-5-0~~2842) ;

DRB3*0207 :

20 ttggagctgcttaagtctgagtgtcatttcttcaatgggacggagcgggtgcggttcctggagagacacttcata
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cgagtactggaacagccagaaggacctcctggagcagaagcggggccaggtggacaaTtactgcagacacaactac
ggggttggtgagag (SEQ ID NO: ~~3-5-1~~2843) ;

DRB3*0208 :

25 cacttttcttggagctgcttaagtctgagtgtcatttcttcaatgggacggagcgggtgcggttcctggagagaca
cttcataaccaggaggagtacgcgcgttcgacagcgacgtgggggagtagccggcggtgaGggagctggggcgcc
cctaGgccgagtactggaacagccagaaggacctcctggagcagaagcggggccaggtggacaaTtactgcagac

acaactacggggttggtg (SEQ ID NO: ~~3-5-2~~2844) ;

DRB3*0209 :

cacgtttcttgagctgcttaagtctgagtgtcatttcttcaatgggacggagcgggtgcggttcctggagagaca
 cttccataaccaggaggagtacgGgcgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcgg
 5 cctgtcgcgagtgctggaacagccagaaggacctcctggagcagaagcggggccAggttgacaaTtactgcagac
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DRB3*0210 :

ggggacacccgaccacgtttcttgGagctgcttaagtctgagtgtcatttcttcaatgggacggagcgggtgcggt
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 10 ggagctggggcggcctgatgccgagtactggaacagccagaaggacctcctggagcagaagcggggccAggtggac
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2846) ;

DRB3*0211 :

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 15 tcctggagagacacttccataaccaggaggagtacgGgcgcttcgacagcgacgtgggggagtaccgggcggtgaG
 ggagctggggcggcctgatgccgagtactggaacagccagaaggacAtcctggagcagaagcggggccaggtggac
 aaTtactgcagacacaaactacggggttggtgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~3-5-5~~
2847) ;

DRB3*0212 :

cacgtttcttgagctgcttaagtctgagtgtcatttcttcaatgggacggagcgggtgcggttcctggagagaGa
 20 cttccataaccaggaggagtacgGgcgcttcgacagcgacgtgggggagtaccgggcggtgaGggagctggggcgg
 cctgatgccgagtactggaacagccagaaggacctcctggagcagaagcggggccaggtggacaaTtactgcagac
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DRB3*0213 :

cacgtttcttgagctgcttaagtctgagtgtcatttcttcaatgggacggagcgggtgcggttcctggagagaca
 25 cttccataaccaggaggagtacgGgcgcttcgacagcgacgtgggggagtaccgggcggtgaggagctggggcgg
 cctgatgccgagtactggaacagccagaaggacctcctggagcagaagcggggccaggtggacaaTtactgcagac

acaactacggggttggtgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~3-5-7~~2849) ;

DRB3*0214 :

cacgtttcttgagctgcttaagtctgagtgtcatttcttcaatgggacggagcgggtgcggttctggagagaca

cttcataaccaggaggagtacgcgcgttcgacagcgacgtgggggagtaccgggcggtgagggagctggggcgg

5 cctgatgccgagtactggaacagccagaaggacctcctggagcagaagcggggccagggtggacaattactgcagac

acaactacggggttgGtgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~3-5-8~~2850) ;

DRB3*0215 :

cacgtttcttgagctgcttaagtctgagtgtcatttcttcaatgggacggagcgggtgcggttctggagagaCa

cttcataaccaggaggagtacGgcgcgttcgacagcgacgtgggggagtaccgggcggtgaGggagctggggcgg

10 cctgatgccgagtactggaacagccagaaggacctcctggagcagaagcggggccAggtggacacctactgcagac

acaactacggggttggtgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~3-5-9~~2851) ;

DRB3*0216 :

cacgtttcttgagctgcttaagtctgagtgtcatttcttcaatgggacggagcgggtgcggttctggagagaca

cttcataaccaggaggagtacgcgcgttcgacagcgacgtgggggagtaccgggcggtgaGggagctggggcgg

15 cctgctgcggagGactggaacagccagaaggacctcctggagcagaagcggggccagggtggacaaTtactgcagac

acaactacggggttggtgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~3-6-0~~2852) ;

DRB3*0217 :

cacgtttcttgagctgcttaagtctgagtgtcatttcttcaatgggacggagcgggtgcggttctggagagaca

cttcataaccaggaggagtacgcgcgttcgacagcgacgtgggggagtaccgggcggtgaGggagctggggcgg

20 cctgatgccgagtactggaacagccagaaggacTtctggagcagaagcggggccagggtggacaaTtactgcagac

acaactacggggttggtgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~3-6-1~~2853) ;

DRB3*030101 :

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tcctggagagatacttcataaccaggaggagtctcgtgcgttcgacagcgacgtgggggagtaccgggcggtgac

25 ggagctggggcggcctgtcgccgagtGctggaacagccagaaggacctcctggagcagaagcggggccagggtggac

aaTtactgcagacacaaactacggggttgGgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~3-6-2~~

2854) ;

DRB3*030102 :

cacgtttcttggagctgcttaagtctgagtgtcatttcttcaatgggacggagcgggtgcggttcctggagagata
 cttccataaccaggaggagttcgtgcgcttcgacagcgacgtgggggagtagccggcggtgacggagctggggcgg
 cctgtcgcgagtcctggaacagccagaaggacctcctggagcagaagcggggccagggtggacaattactgcagac
 5 acaactacggCgttgtggagagcttcacagtgcagcggcgag (SEQ ID NO: ~~3-6-3~~2855) ;

DRB3*0302 :

cacgtttcttggagctgcttaagtctgagtgtcatttcttcaatgggacggagcgggtgcggttcctggagagaCa
 cttccataaccaggaggagttcgtgcgcttcgacagcgacgtgggggagtagccggcggtgacggagctggggcgg
 cctgtcgcgagtcctggaacagccagaaggacctcctggagcagaagcggggccagggtggacaaTtactgcagac
 10 acaactacggggttgtGg (SEQ ID NO: ~~3-6-4~~2856) ;

DRB3*0303 :

tttcttggagctgcttaagtctgagtgtcatttcttcaatgggacggagcgggtgcggttcctggaGagatacttc
 cataaccaggaggagTcgtgcgcttcgacagcgacgtgggggagtagccggcggtgacggagctggggcgccctg
 tGccgagtcctggaacagccagaaggacctcctggagcagaagcggggccGggtggacaaTtactgcagacacaa
 15 ctacggggttggtgagagcttcaca (SEQ ID NO: ~~3-6-5~~2857) ;

DRB4*010101 :

atggtgtgtctgaagctccctggaggctcctgtatggcagcgctgacagtgcattgaCggtgctgagctccccac
 tggctttggctggggacaccaaccacgtttcttggagcaggctaagtgtgagtgtcatttcttcaatgggacgga
 gcgagtggtgaacctgatcagatacatctataaccaagaggagtagcgcgctacaacagtgcacctgggggagtag
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 NO: ~~3-6-6~~2858) ;

DRB4*0102 :

gagcgagtgtggaacctgatcagatacatctataaccaagaggagtagcgcgctacaacagtgcacctgggggagt
 25 accaggcggtgacggagctggggcgccctgacgctgagtactggaacagccagaaggacctcctggagcggaggcg
 ggccgaggtggGcacctactgcagatacaactacggggttggtggagagcttcacagtgcagcggcgag (SEQ ID
 NO: ~~3-6-7~~2959) ;

DRB4*010302 :

ggggacacccaaccacgtttcttggagcaggctaagtgtgagtgatcatttcctcaatgggacggagcgagtggtga
aCctgatcagatacatctataaccaagaggagtacgcgcgctacaacagtgacctgggggagtaccaggcggtgac
ggagctggggcggcctgacgctgagtactggaacagccagaaggacctcctggagcggaggcggccgaggtggac
5 acctactgcagaTacaactacggggttgtggagagcttcacagtcagcggcgag (SEQ ID NO: ~~3-6-8~~
2860) ;

DRB4*010303 :

atggtgtgtctgaagctccctggaggctcctgtatggcagcgctgacagtgacattgaCggtgctgagctcccccac
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10 gcgagtggtgaacctgatcagatacatctataaccaagaggagtacgcgcgctacaacagtgacctgggggagtac
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ccgaggtggacacctaTtgcagatacaactacggggttgtggagagcttcacagtcagcggcgag (SEQ ID
NO: ~~3-6-9~~2861) ;

DRB4*010304 :

15 cacgtttcttggagcaggctaagtgtgagtgatcatttcctcaatgggacggagcgagtggtggaacctgatcagata
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cctgacgctgagtactggaacagccagaaggacctcctggagcggaggcgggcccaggtggacacctactgcagat
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DRB4*0104 :

20 cacgtttcttggagcaggctaagtgtgagtgatcatttcctcaatgggacggagcgagtggtggaacctgatcagata
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cctgacgctgagtactggaacagccagaaggacctcctggagcggaggcgggcccaggtggacaActactgcagaT
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DRB4*0105 :

25 ttggagcaggctaagtgtgagtgatcatttcctcaatgggacggagcgagtggtgAacctgatcagatacatctata
accaagaggagtacgcgcgctacaacagtgacctgggggagtaccaggcggtgacggagctggggcggcctgacgc
tgagtactggaacagccagaaggacctcctggagcggaggcgggcccaggtggacacctactgcagacacaactac

ggggttgtggagag (SEQ ID NO: ~~3-7-2~~2864) ;

DRB4*0106 :

cacgtttcttggagcaggctaagtgtgagtgtcatttcGtcaatgggacggagcgagtgtggaaGctgatcagata
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5 cctgacgctgagtactggaacagccagaaggacctcctggagcggaggcggccgaggtggacacctactgcagaT
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DRB4*0201N :

ggtgctgagctccccactggctttggctggggacacccAaccacgtttcttggagcaggctaagtgtgagtgtcat
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10 gagtaccaggcgggtgacggagctggggcggcctgacgctgagtactggaacagccagaaggacctcctggagcgga
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ID NO: ~~3-7-4~~2866) ;

DRB5*010101 :

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15 tggctttggctggggacacccgaccacgtttcttgcagcaggataagtatgagtgtcatttcttcaacgggacgga
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NO: ~~3-7-5~~2867) ;

20 DRB5*010102 :

cacgtttcttgcagcaggataagtatgagtgtcatttcttcaacgggacggagcgggtgcggttccctgcacagaga
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cctgacgcTgagtactggaacagccagaaggacTtccctggaaGaCaggcgggcccgggtggacacctactgcagac
acaactacggggttggtagagcttcaca (SEQ ID NO: ~~3-7-6~~2868) ;

25 DRB5*0102 :

ggggacacccgaccacgtttcttGagcaggataagtatgagtgtcatttcttcaacgggacggagcgggtgcggt
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acctactgcagacacaactacggggttggtgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~3-7-7~~
2869) ;

DRB5*0103 ;

5 ttgcagcaggataagtatgagtgtcatttcttcaacgggacggagcgggtgcggttcctgcacagaGgcattctata
accaagaggagaacgtgcgcttcgacagcgacgtgggggagtagcggcggtgacggagctggggcgccctgacgc
tgagtactggaacagccagaaggacttcctggaagacaGcgGgccgcggtggacacctactgcagacacaactac
ggggttggtgagagcttcacag (SEQ ID NO: ~~3-7-8~~2870) ;

DRB5*0104 :

10 ggggacacccgaccacgtttcttgcagcaggataagtatgagtgtcatttcttcaacgggacggagcgggtgcggt
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2871) ;

15 DRB5*0105 :

ccacgtttcttgcagcaggataagtatgagtgtcatttcttcaacgggacggagcgggtgcggttcctgcacagag
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gcctgacgctgagtactggaacagccagaaggacTtcctggaaGacaggcgGgccgcggtggacacctactgcaga
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20 DRB5*0106 :

cacgtttcttgcagcaggataagtatgagtgtcatttcttcaacgggacggagcgggtgcggttcctgcacagaga
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cctgacgctgagtactggaacagccagaaggacatcctggagcaggcgcgggccgcggtggacacctactgcagac
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25 DRB5*0107 :

cacgtttcttgcagcaggataagtatgagtgtcatttcttcaacgggacggagcgggtgcggttcctgcacagaga
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cctgacgctgagtactggaacagccagaaggacAtcctggaaGacaggcgGgccgcggtggacacctactgcagac
acaactacggggttggtg (SEQ ID NO: ~~3-8-2~~2874) ;

DRB5*0109 :

cacgtttcttgcagcaggataagtatgagtgtcatttcttcaacgggacggagcgggtgcggttcctgcacagaga
5 catctataaccaagaggaggacttgcgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcgg
cctgacgctgagtactggaacagccagaaggacttctctggaaAacaggcgGgccgcggtggacacctactgcagac
acaactacggggttggtg (SEQ ID NO: ~~3-8-3~~2875) ;

DRB5*0110N :

cacgtttcttgcagcaggataagtatgagtgtcatttcttcaacgggacggagcgggtgcggttcctgcacagaGg
10 catctataaccaagaggagAacgtgcgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcgg
cctgacgctgagtactggaacagccagaaggacTtctctggaaGacaggcgGgccgcggtggacacctactgca. . c
acaactacggggttggtgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~3-8-4~~2876) ;

DRB5*0111 :

cacgtttcttgcagcaggataagtatgagtgtcatttcttcaacgggacggagcgggtgcggttcctgcacagaga
15 catctataaccaagaggaggacTtgcgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcgg
cctgacgctgagtactggaacagccagaaggacatcctggagcaggGgccggcggtggacacctactgcagac
acaactacggggttggtgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~3-8-5~~2877) ;

DRB5*0112 :

cacgtttcttgcagcaggataagtatgagtgtcatttcttcaacgggacggagcgggtgcggttcctgcacagaga
20 catctataaccaagaggaggacTtgcgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcgg
cctgacgccgagtGctggaacagccagaaggacttctctggagcGgaggcgggcccagggtggacaccgtGtgcagac
acaactacggggttggtgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~3-8-6~~2878) ;

DRB5*0202 :

atggtgtgtctgaagctccctggaggttctcAcatggcagtgctgacagtgacactgatggtgctgagctccccac
25 tggcttttggtggtgggacacccgaccatgtttcttgcagcaggataagtatgagtgtcatttcttcaacgggacgga
gcggtgcggttcctgcacagaggcatctataaccaagaggagaacgtgcgcttcgacagcgacgtgggggagtac
cgggcggtgacggagctggggcggcctgacgctgagtactggaacagccagaaggacatcctggagcaggcgcggg

ccgcggtggacacctactgcagacacaactacggggctgtGgagagcttcacagtgcagcggcgag (SEQ ID
 NO: ~~3-8-7~~2879) ;

DRB5*0203 :

5 tttcttgacagcaggataagtatgagtgtcatttcttcaacgggacggagcgggtgcggttcctgcacagaGgcatc
 tataaccaagaggagAacgtgcgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcggcctg
 acgctgagtactggaacagccagaaggacAtcctggagcagGcggggccgcggtggacacctactgcagacacaa
 ctacggggttggtgagagcttcacagtgcagcgg (SEQ ID NO: ~~3-8-8~~2880) ;

DRB5*0204 :

10 catgtttcttgacagcaggataagtatgagtgtcatttcttcaacgggacggagcgggtgcggttcctgcacagaGg
 catctataaccaagaggagaacgtgcgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcgg
 cctgacgctgagtactggaacagccagaaggacTtctggagcaggGcggggccgcggtggacacctactgcagac
 acaactacggggctgtGgagagcttcaca (SEQ ID NO: ~~3-8-9~~2881) ;

DRB5*0205 :

15 catgtttcttgacagcaggataagtatgagtgtcatttcttcaacgggacggagcgggtgcggttcctgcacagaGg
 catctataaccaagaggagAacgtgcgcttcgacagcgacgtgggggagtaccgggcggtgacggagctggggcgg
 cctgacgctgagtactggaacagccagaaggacctcctggagcagaggcgggccgcggtggacacctactgcagac
 acaactacggggctgtGgagagcttcacagtgcagcggcgag (SEQ ID NO: ~~3-9-0~~2882)

20 In the following, Probe List DR1 and 2 are
 shown in Tables 21-1 to 21-8 and Tables 22-1 to 22-7
 respectively. Allele-Probe Lists 1 and 2 are shown
 in Tables 23-1 to 23-13 and Tables 24-1 to 24-13
 respectively.

Table 21-1

Probe No.	Base Sequence
0	g gtg cgg ttg Ctg gaA (SEQ ID No: 391 2883)
1	g Cgg ttg ctg gaa aga T (SEQ ID No: 392 2884)
2	c tat aac caa gag gag tC (SEQ ID No: 393 2885)
3	ctg ggg cgg cct gaT (SEQ ID No: 394 2886)
4	ggg cgg cct gat gcC (SEQ ID No: 395 2887)
5	cac aac tac ggg gtt gG (SEQ ID No: 396 2888)
6	c atc tat aac caa gag gaA (SEQ ID No: 397 2889)
7	c gcg gtg gac acc taT (SEQ ID No: 398 2890)
8	ga cac aac tac ggg gC (SEQ ID No: 399 2891)
9	ag agg cgg gcc gcC (SEQ ID No: 400 2892)
10	g aac agc cag aag gac A (SEQ ID No: 401 2893)
11	g gac atc ctg gaa gac G (SEQ ID No: 402 2894)
12	gac atc ctg gaa gac gA (SEQ ID No: 403 2895)
13	g gcc gcg gtg gac aaT (SEQ ID No: 404 2896)
14	ac aac tac ggg gtt gtG (SEQ ID No: 405 2897)
15	c ttc gac agc gac gtg A (SEQ ID No: 406 2898)
16	c ctc ctg gag cag gC (SEQ ID No: 407 2899)
17	ca cgt ttc ttg tgg G (SEQ ID No: 408 2900)
18	tc tat aac caa gag gag tA (SEQ ID No: 409 2901)
19	gac ctc ctg gag cag G (SEQ ID No: 410 2902)
20	gac ctc ctg gag cag aA (SEQ ID No: 411 2903)
21	g gag cgg gtg cgg tA (SEQ ID No: 412 2904)
22	c ctg gac aga tac ttc C (SEQ ID No: 413 2905)
23	c cat aac cag gag gag A (SEQ ID No: 414 2906)
24	c cat aac cag gag gag aA (SEQ ID No: 415 2907)
25	gc gac gtg ggg gag tT (SEQ ID No: 416 2908)
26	G cag aag cgg ggc cG (SEQ ID No: 417 2909)
27	G ggc cgg gtg gac aA (SEQ ID No: 418 2910)
28	g ggc cgg gtg gac aaT (SEQ ID No: 419 2911)
29	ca cgt ttc ttg gA (SEQ ID No: 420 2912)
30	g gtg cgg ttc ctg gaG (SEQ ID No: 421 2913)

Table 21-2

Probe No.	Base Sequence
31	c ctg gag aga tac ttc C (SEQ ID No: <u>4222914</u>)
32	c aga tac ttc cat aac caG (SEQ ID No: <u>4232915</u>)
33	tt ggt gag agc ttc acG (SEQ ID No: <u>4242916</u>)
34	g gtg cgg tac ctg gaC (SEQ ID No: <u>4252917</u>)
35	g ggg cgg cct gat gA (SEQ ID No: <u>4262918</u>)
36	ggg cgg cct gat gaG (SEQ ID No: <u>4272919</u>)
37	c aga tac ttc cat aac cG (SEQ ID No: <u>4282920</u>)
38	ctg ggg cgg cct gC (SEQ ID No: <u>4292921</u>)
39	ag cag aag cgg ggc C (SEQ ID No: <u>4302922</u>)
40	g cag aag cgg ggc cA (SEQ ID No: <u>4312923</u>)
41	gg ggc cag gtg gac aA (SEQ ID No: <u>4322924</u>)
42	ctg ggg cgg cct agC (SEQ ID No: <u>4332925</u>)
43	gg cct gat gcc gag tC (SEQ ID No: <u>4342926</u>)
44	gac gtg ggg gag ttc T (SEQ ID No: <u>4352927</u>)
45	gt ttc ttg gag tac tct aC (SEQ ID No: <u>4362928</u>)
46	g gtg cgg ttc ctg gaC (SEQ ID No: <u>4372929</u>)
47	g tac cgg gcg gtg aG (SEQ ID No: <u>4382930</u>)
48	g ggc cag gtg gac aaT (SEQ ID No: <u>4392931</u>)
49	ttc gac agc gac gtg C (SEQ ID No: <u>4402932</u>)
50	c cat aac cag gag gag tT (SEQ ID No: <u>4412933</u>)
51	c ctg gac aga tac ttc G (SEQ ID No: <u>4422934</u>)
52	c cat aac cag gag gag tA (SEQ ID No: <u>4432935</u>)
53	atg gtg tgt ctg aag T (SEQ ID No: <u>4442936</u>)
54	ga tac ttc tat cac caa gaA (SEQ ID No: <u>4452937</u>)
55	tc ttg gag cag gtt aaa C (SEQ ID No: <u>4462938</u>)
56	c tat cac caa gag gag tA (SEQ ID No: <u>4472939</u>)
57	g cag agg cgg gcc gA (SEQ ID No: <u>4482940</u>)
58	ggg cgg cct gac gcT (SEQ ID No: <u>4492941</u>)
59	c ttg gag cag gtt aaa cA (SEQ ID No: <u>4502942</u>)
60	ctg gac aga tac ttc tat C (SEQ ID No: <u>4512943</u>)

Table 21-3

Probe No.	Base Sequence
61	g ctg ggg cgg cct aG (SEQ ID No: <u>4522944</u>)
62	a gag gag tac gtg cgG (SEQ ID No: <u>4532945</u>)
63	gc ttc aca gtg cag cgA (SEQ ID No: <u>4542946</u>)
64	c ctc ctg gag cag agA (SEQ ID No: <u>4552947</u>)
65	t ttc ttg gag cag gtt aaA (SEQ ID No: <u>4562948</u>)
66	a gac agg cgg gcc cT (SEQ ID No: <u>4572949</u>)
67	g aac agc cag aag gac T (SEQ ID No: <u>4582950</u>)
68	ag gac ttc ctg gaa gaC (SEQ ID No: <u>4592951</u>)
69	gg cgg cct gat gcc C (SEQ ID No: <u>4602952</u>)
70	c ggg gtt gtg gag agA (SEQ ID No: <u>4612953</u>)
71	g gac ctc ctg gag cG (SEQ ID No: <u>4622954</u>)
72	ctg ggg cgg cct gat A (SEQ ID No: <u>4632955</u>)
73	ag tac cgg gcg gtg aT (SEQ ID No: <u>4642956</u>)
74	g ggg gag tac cgg gT (SEQ ID No: <u>4652957</u>)
75	g cag agg cgg gcc C (SEQ ID No: <u>4662958</u>)
76	g cag agg cgg gcc cT (SEQ ID No: <u>4672959</u>)
77	tc ctg gag cag agg cA (SEQ ID No: <u>4682960</u>)
78	caa gag gag tac gtg cA (SEQ ID No: <u>4692961</u>)
79	c ttg gag cag gtt aaa cC (SEQ ID No: <u>4702962</u>)
80	gac ctc ctg gaa gac G (SEQ ID No: <u>4712963</u>)
81	gac ctc ctg gaa gac gA (SEQ ID No: <u>4722964</u>)
82	gac atc ctg gag cag aA (SEQ ID No: <u>4732965</u>)
83	agc gac gtg gaC (SEQ ID No: <u>4742966</u>)
84	g ggg cgg cct gat gG (SEQ ID No: <u>4752967</u>)
85	tc tat cac caa gag gag A (SEQ ID No: <u>4762968</u>)
86	c tat cac caa gag gag aA (SEQ ID No: <u>4772969</u>)
87	g gct ggg gac acc cA (SEQ ID No: <u>4782970</u>)
88	g gac agg cgg ggc C (SEQ ID No: <u>4792971</u>)
89	c cag gtg gac acc gtG (SEQ ID No: <u>4802972</u>)
90	tc ctg tgg cag ggt aaA (SEQ ID No: <u>4812973</u>)

Table 21-4

Probe No.	Base Sequence
91	g gcg gtg acg gag ctA (SEQ ID No: 482 <u>2974</u>)
92	g cct gtc gcc gag tC (SEQ ID No: 483 <u>2975</u>)
93	gtg cag ttc ctg gaa agT (SEQ ID No: 484 <u>2976</u>)
94	ag tcc tgg aac agc cG (SEQ ID No: 485 <u>2977</u>)
95	gg cgg cct gct gcG (SEQ ID No: 486 <u>2978</u>)
96	gtg acg gag cta ggg T (SEQ ID No: 487 <u>2979</u>)
97	c tct acg ggt gag tgt T (SEQ ID No: 488 <u>2980</u>)
98	cgg ttc ctg gac aga taT (SEQ ID No: 489 <u>2981</u>)
99	gc tcc tgc atg gca gT (SEQ ID No: 490 <u>2982</u>)
100	g tac cgg gcg gtg acA (SEQ ID No: 491 <u>2983</u>)
101	cac aac tac ggg gtt gT (SEQ ID No: 492 <u>2984</u>)
102	gtt gtt gag agc ttc acG (SEQ ID No: 493 <u>2985</u>)
103	tt gtg gag agc ttc acG (SEQ ID No: 494 <u>2986</u>)
104	g ctg ggg cgg cct gT (SEQ ID No: 495 <u>2987</u>)
105	gg cct gct gcg gag C (SEQ ID No: 496 <u>2988</u>)
106	gt ttc ttg gag tac tct aG (SEQ ID No: 497 <u>2989</u>)
107	gg cct gat gcg gag C (SEQ ID No: 498 <u>2990</u>)
108	tc tat aac caa gag gag G (SEQ ID No: 499 <u>2991</u>)
109	ag gac atc ctg gaa gaC (SEQ ID No: 500 <u>2992</u>)
110	g ctg ggg cgg cct aT (SEQ ID No: 501 <u>2993</u>)
111	c ttg gag tac tct acg tC (SEQ ID No: 502 <u>2994</u>)
112	gt ttc ttg gag tac tct aT (SEQ ID No: 503 <u>2995</u>)
113	c aac tac ggg gct gtG (SEQ ID No: 504 <u>2996</u>)
114	ct gtg gag agc ttc acG (SEQ ID No: 505 <u>2997</u>)
115	g agc ttc aca gtg cag A (SEQ ID No: 506 <u>2998</u>)
116	ctg gag cgg agg cgT A (SEQ ID No: 507 <u>2999</u>)
117	g ttg ctg gaa aga cgc G (SEQ ID No: 508 <u>3000</u>)
118	ctg gag cgg agg cgC (SEQ ID No: 509 <u>3001</u>)
119	g aag gac ttc ctg gaa G (SEQ ID No: 510 <u>3002</u>)
120	g ctg gaa gac agg cgC (SEQ ID No: 511 <u>3003</u>)

Table 21-5

Probe No.	Base Sequence
121	t gag tgt cat ttc ttc aaC (SEQ ID No: 512 3004)
122	gac ttc ctg gaa gac gA (SEQ ID No: 513 3005)
123	c ttg gag tac tct acg G (SEQ ID No: 514 3006)
124	g gac ctc ctg gaa gaC (SEQ ID No: 515 3007)
125	g gac ttc ctg gaa gac G (SEQ ID No: 516 3008)
126	tc tat aac caa gag gag tT (SEQ ID No: 517 3009)
127	c aga tac ttc tat aac caG (SEQ ID No: 518 3010)
128	c tat aac cag gag gag tT (SEQ ID No: 519 3011)
129	at aac caa gag gag gac T (SEQ ID No: 520 3012)
130	cgg agg cgg gcc gA (SEQ ID No: 521 3013)
131	cc gag gtg gac acc taT (SEQ ID No: 522 3014)
132	aa gac agg cgg gcc C (SEQ ID No: 523 3015)
133	ttg gag tac tct acg tC (SEQ ID No: 524 3016)
134	gag tac tct acg tct gaG (SEQ ID No: 525 3017)
135	cag aag gac ttc ctg gaA (SEQ ID No: 526 3018)
136	g gcc gcg gtg gac aA (SEQ ID No: 527 3019)
137	ttc tat aat caa gag gag A (SEQ ID No: 528 3020)
138	tc tat aac caa gag gag aA (SEQ ID No: 529 3021)
139	ca cgt ttc ttg gag cT (SEQ ID No: 530 3022)
140	cgg cct gat gag gag C (SEQ ID No: 531 3023)
141	a gac agg cgg gcc gT (SEQ ID No: 532 3024)
142	g cgg cct gat gag gaC (SEQ ID No: 533 3025)
143	g cgg cct gat gag gG (SEQ ID No: 534 3026)
144	g ttc cgg gcg gtg aG (SEQ ID No: 535 3027)
145	gc tcc tgc atg gca gtT (SEQ ID No: 536 3028)
146	ttg gct ggg gac acc A (SEQ ID No: 537 3029)
147	g gag cgg gtg cgg ttA (SEQ ID No: 538 3030)
148	c cat aac cag gag gag C (SEQ ID No: 539 3031)
149	cag aag gac atc ctg gG (SEQ ID No: 540 3032)
150	gag cgg gtg cgg ttC (SEQ ID No: 541 3033)

Table 21-6

Probe No.	Base Sequence
151	g gaa gac gag cgg gcT (SEQ ID No: <u>5423034</u>)
152	c ctg gaa gac gag cGc (SEQ ID No: <u>5433035</u>)
153	g gac atc ctg gaa gac aA (SEQ ID No: <u>5443036</u>)
154	a cgt ttc ttg gag tac tC (SEQ ID No: <u>5453037</u>)
155	gg ttc ctg gac aga tac T (SEQ ID No: <u>5463038</u>)
156	at atc ctg gag cag gC (SEQ ID No: <u>5473039</u>)
157	cac aac tat ggg gtt gA (SEQ ID No: <u>5483040</u>)
158	g aga tac ttc cat aat caG (SEQ ID No: <u>5493041</u>)
159	c tgc aga cac aac tac C (SEQ ID No: <u>5503042</u>)
160	t aac cag gag gag aac C (SEQ ID No: <u>5513043</u>)
161	ac gtg ggg gag ttc cT (SEQ ID No: <u>5523044</u>)
162	ctg ggg cgg cct gtC (SEQ ID No: <u>5533045</u>)
163	gg gag ttc cgg gcg T (SEQ ID No: <u>5543046</u>)
164	ca cgt ttc ttg gag tac T (SEQ ID No: <u>5553047</u>)
165	tct acg tct gag tgt caA (SEQ ID No: <u>5563048</u>)
166	ggg cgg cct gat gcT (SEQ ID No: <u>5573049</u>)
167	t ttc ttg gag tac tct aC (SEQ ID No: <u>5583050</u>)
168	gac atc ctg gag cag G (SEQ ID No: <u>5593051</u>)
169	g acg gag cgg gtg CA (SEQ ID No: <u>5603052</u>)
170	g gcc gag gtg gac aaT (SEQ ID No: <u>5613053</u>)
171	ttg gag tac cct acg tC (SEQ ID No: <u>5623054</u>)
172	t aac cag gag gag ttc C (SEQ ID No: <u>5633055</u>)
173	gg gcc gag gtg gac G (SEQ ID No: <u>5643056</u>)
174	c tcc cca ctg gct ttg T (SEQ ID No: <u>5653057</u>)
175	gc aga cac aac tat ggA (SEQ ID No: <u>5663058</u>)
176	cac aac tac gga gtt gtG (SEQ ID No: <u>5673059</u>)
177	g tgg cag cct aag agG (SEQ ID No: <u>5683060</u>)
178	tg gac aga tac ttc tat aaT (SEQ ID No: <u>5693061</u>)
179	cgg ttc ctg gac aga C (SEQ ID No: <u>5703062</u>)
180	ac ttc ctg gag cag gC (SEQ ID No: <u>5713063</u>)

Table 21-7

Probe No.	Base Sequence
181	g gag ttc cgg gcg gC (SEQ ID No: <u>5723064</u>)
182	c tgg aac agc tag aag A (SEQ ID No: <u>5733065</u>)
183	ac gtg ggg gag ttc cA (SEQ ID No: <u>5743066</u>)
184	c tgg aac agc ca ggg gac A (SEQ ID No: <u>5753067</u>)
185	tc ctg gaa gac agg gC (SEQ ID No: <u>5763068</u>)
186	g cgg gtg cgg ttc cC (SEQ ID No: <u>5773069</u>)
187	c tat aac cag gag gag aA (SEQ ID No: <u>5783070</u>)
188	cgt ttc ttg gag ctg cG (SEQ ID No: <u>5793071</u>)
189	c tcc cga ctg gct ttC (SEQ ID No: <u>5803072</u>)
190	ca cgt ttc ttg gag ctg T (SEQ ID No: <u>5813073</u>)
191	cgt ttc ttg gag ctg tG (SEQ ID No: <u>5823074</u>)
192	g gtg cgg tac ctg gaG (SEQ ID No: <u>5833075</u>)
193	gt ttc tcg gag ctg cG (SEQ ID No: <u>5843076</u>)
194	cgg gtg cgg tat ctg A (SEQ ID No: <u>5853077</u>)
195	ac cag gag gag tac gC (SEQ ID No: <u>5863078</u>)
196	c cag gag gag ttc ctg A (SEQ ID No: <u>5873079</u>)
197	ca cgt ttc ttg G (SEQ ID No: <u>5883080</u>)
198	cgg ttc ctg gag aga C (SEQ ID No: <u>5893081</u>)
199	gtg gac aat tac tgc agG (SEQ ID No: <u>5903082</u>)
200	ggg cgg cct gat gcG (SEQ ID No: <u>5913083</u>)
201	aga cac ttc cat aac caG (SEQ ID No: <u>5923084</u>)
202	ac cag gag gag aac gC (SEQ ID No: <u>5933085</u>)
203	g gag cgg gtg cgg C (SEQ ID No: <u>5943086</u>)
204	cac aac tac ggg gtt gC (SEQ ID No: <u>5953087</u>)
205	gc aga cac aac tac ggC (SEQ ID No: <u>5963088</u>)
206	g ctg aca gtg aca ttg aC (SEQ ID No: <u>5973089</u>)
207	cgg gcc gag gtg gG (SEQ ID No: <u>5983090</u>)
208	ag tgt gag tgt cat ttc C (SEQ ID No: <u>5993091</u>)
209	g gag cga gtg tgg aaC (SEQ ID No: <u>6003092</u>)
210	g gac acc tac tgc aga T (SEQ ID No: <u>6013093</u>)

Table 21-8

Probe No.	Base Sequence
211	cg cgc tac aac agt gaT (SEQ ID No: 602 <u>3094</u>)
212	gg gcc gag gtg gac aA (SEQ ID No: 603 <u>3095</u>)
213	tg gac aac tac tgc aga T (SEQ ID No: 604 <u>3096</u>)
214	acg gag cga gtg tgg A (SEQ ID No: 605 <u>3097</u>)
215	a ggt tcc tac atg gca aA (SEQ ID No: 606 <u>3098</u>)
216	ca cgt ttc ttg C (SEQ ID No: 607 <u>3099</u>)
217	atc tat aac caa gag gag A (SEQ ID No: 608 <u>3100</u>)
218	cgg ttc ctg cac aga G (SEQ ID No: 609 <u>3101</u>)
219	gac ttc ctg gaa gac aC (SEQ ID No: 610 <u>3102</u>)
220	c ctg gaa gac acg cgC (SEQ ID No: 611 <u>3103</u>)
221	g aag gac atc ctg gaa G (SEQ ID No: 612 <u>3104</u>)
222	ag aag gac ttc ctg gaa A (SEQ ID No: 613 <u>3105</u>)
223	g cct gac gcc gag tC (SEQ ID No: 614 <u>3106</u>)
224	ag gac ttc ctg gag cG (SEQ ID No: 615 <u>3107</u>)
225	c gag gtg gac acc gtG (SEQ ID No: 616 <u>3108</u>)
226	ctc cct gga ggt tcc tA (SEQ ID No: 617 <u>3109</u>)

Table 22-1

Probe No.	Base Sequence
0	g ttg ctg gaA aga tgc at (SEQ ID No: <u>6183110</u>)
1	ctg gaa aga Tgc atc tat a (SEQ ID No: <u>6193111</u>)
2	gag gag tCc gtg cgc (SEQ ID No: <u>6203112</u>)
3	cgg cct gaT gcc gag (SEQ ID No: <u>6213113</u>)
4	cct gat gcC gag tac tg (SEQ ID No: <u>6223114</u>)
5	c ggg gtt gGt gag agc (SEQ ID No: <u>6233115</u>)
6	caa gag gaA tcc gtg cg (SEQ ID No: <u>6243116</u>)
7	g gac acc taT tgc aga ca (SEQ ID No: <u>6253117</u>)
8	c tac ggg gCt gtg gag (SEQ ID No: <u>6263118</u>)
9	gg gcc gcC gtg gac (SEQ ID No: <u>6273119</u>)
10	cag aag gac Atc ctg gaa (SEQ ID No: <u>6283120</u>)
11	g gaa gac Gag cgg gc (SEQ ID No: <u>6293121</u>)
12	gaa gac gAg cgg gcc (SEQ ID No: <u>6303122</u>)
13	g gtg gac aaT tac tgc ag (SEQ ID No: <u>6313123</u>)
14	ggg gtt gtG gag agc t (SEQ ID No: <u>6323124</u>)
15	c gac gtg Agg gag tac (SEQ ID No: <u>6333125</u>)
16	gag cag gCg cgg gc (SEQ ID No: <u>6343126</u>)
17	ttc ttg tgg Gag ctt aag (SEQ ID No: <u>6353127</u>)
18	a gag gag tAc gtg cgc (SEQ ID No: <u>6363128</u>)
19	gag cag Gcg cgg gc (SEQ ID No: <u>6373129</u>)
20	gag cag aAg cgg gcc (SEQ ID No: <u>6383130</u>)
21	xc acc Aga c (SEQ ID No: <u>6393131</u>)
22	g gtg cgg tAc ctg gac (SEQ ID No: <u>6403132</u>)
23	g gtg gac aAc tac tgc a (SEQ ID No: <u>6413133</u>)
24	cgg ggc cGg gtg ga (SEQ ID No: <u>6423134</u>)
25	g ttc ctg gaG aga tac tt (SEQ ID No: <u>6433135</u>)
26	aga tac ttc Cat aac cag g (SEQ ID No: <u>6443136</u>)
27	g gag gag Aac gtg cgc (SEQ ID No: <u>6453137</u>)
28	g gag gag aAc gtg cgc (SEQ ID No: <u>6463138</u>)
29	cat aac caG gag gag tc (SEQ ID No: <u>6473139</u>)
30	ggg gag tTc cgg gcg (SEQ ID No: <u>6483140</u>)

Table 22-2

Probe No.	Base Sequence
31	agc ttc acG gtg cag c (SEQ ID No: <u>6493141</u>)
32	g tac ctg gaC aga tac tt (SEQ ID No: <u>6503142</u>)
33	g cct gat gAg gag tac t (SEQ ID No: <u>6513143</u>)
34	cct gat gaG gag tac tg (SEQ ID No: <u>6523144</u>)
35	c cat aac cGg gag gag (SEQ ID No: <u>6533145</u>)
36	cgg cct gCt gcg gag (SEQ ID No: <u>6543146</u>)
37	g cgg ggc Cag cta ga (SEQ ID No: <u>6553147</u>)
38	cgg ggc cAg gtg gac (SEQ ID No: <u>6563148</u>)
39	cgg cct aGc gcc gag (SEQ ID No: <u>6573149</u>)
40	cgg cct agC gcc gag (SEQ ID No: <u>6583150</u>)
41	t gcc gag tCc tgg aac (SEQ ID No: <u>6593151</u>)
42	g gag ttc Tgg gcg gtg (SEQ ID No: <u>6603152</u>)
43	ag tac tct aCg tct gag t (SEQ ID No: <u>6613153</u>)
44	g ttc ctg gaC aga tac tt (SEQ ID No: <u>6623154</u>)
45	gcg gtg aGg gag ctg (SEQ ID No: <u>6633155</u>)
46	c gac gtg Cgg gag ttc (SEQ ID No: <u>6643156</u>)
47	ag aag gac Atc ctg gag (SEQ ID No: <u>6653157</u>)
48	g gag gag tTc gtg cgc (SEQ ID No: <u>6663158</u>)
49	aga tac ttc Gat aac cag g (SEQ ID No: <u>6673159</u>)
50	c cat aac caG gag gag ta (SEQ ID No: <u>6683160</u>)
51	g gag gag tAc gtg cgc (SEQ ID No: <u>6693161</u>)
52	gt ctg aag Ttc cct gga (SEQ ID No: <u>6703162</u>)
53	t cac caa gaA gag tac gt (SEQ ID No: <u>6713163</u>)
54	cag gtt aaa Cat gag tgt c (SEQ ID No: <u>6723164</u>)
55	cgg gcc gAg gtg gac (SEQ ID No: <u>6733165</u>)
56	cct gac gCt gag tac tg (SEQ ID No: <u>6743166</u>)
57	ag gtt aaa cAt gag tgt ca (SEQ ID No: <u>6753167</u>)
58	tac ttc tat Cac caa gag g (SEQ ID No: <u>6763168</u>)
59	tac gtg cgG ttc gac ag (SEQ ID No: <u>6773169</u>)
60	gg cag agA cgg gcc (SEQ ID No: <u>6783170</u>)

Table 22-3

Probe No.	Base Sequence
61	g cag gtt aaA cat gag tg (SEQ ID No: <u>6793171</u>)
62	egg gcc cTg gtg gac (SEQ ID No: <u>6803172</u>)
63	cag aag gac Ttc ctg gaa (SEQ ID No: <u>6813173</u>)
64	ctg gaa gaC agg cgg g (SEQ ID No: <u>6823174</u>)
65	ct gat gcc Cag tac tgg (SEQ ID No: <u>6833175</u>)
66	t gtg gag agA ttc aca gt (SEQ ID No: <u>6843176</u>)
67	ctg gag cGg agg cgg (SEQ ID No: <u>6853177</u>)
68	g cgg gcc Ctg gtg ga (SEQ ID No: <u>6863178</u>)
69	gg cct gat Acc gag tac (SEQ ID No: <u>6873179</u>)
70	g gcg gtg aTg gag ctg (SEQ ID No: <u>6883180</u>)
71	g tac cgg gTg gtg acg (SEQ ID No: <u>6893181</u>)
72	cag agg cAg gcc gcg (SEQ ID No: <u>6903182</u>)
73	g tac gtg cAc ttc gac a (SEQ ID No: <u>6913183</u>)
74	cag gtt aaa Cct gag tgt (SEQ ID No: <u>6923184</u>)
75	ag gtt aaa cCt gag tgt c (SEQ ID No: <u>6933185</u>)
76	gtg ggg gaC tac cgg (SEQ ID No: <u>6943186</u>)
77	g cct gat gGc gag tac (SEQ ID No: <u>6953187</u>)
78	a gag gag Aac gtg cgc (SEQ ID No: <u>6963188</u>)
79	a gag gag aAc gtg cgc (SEQ ID No: <u>6973189</u>)
80	xacc cAa c (SEQ ID No: <u>6983190</u>)
81	gac acc gtG tgc aga c (SEQ ID No: <u>6993191</u>)
82	g cag ggt aaA tat aag tgt (SEQ ID No: <u>7003192</u>)
83	acg gag ctA ggg cgg (SEQ ID No: <u>7013193</u>)
84	c gcc gag tCc tgg aac (SEQ ID No: <u>7023194</u>)
85	c ctg gaa agT ctc ttc ta (SEQ ID No: <u>7033195</u>)
86	g aac agc cGg aag gac (SEQ ID No: <u>7043196</u>)
87	cct gct gcG gag tac t (SEQ ID No: <u>7053197</u>)
88	g cta ggg Tgg cct gtc (SEQ ID No: <u>7063198</u>)
89	ggt gag tgt Tat ttc ttc a (SEQ ID No: <u>7073199</u>)
90	tg gac aga taT ttc tat aac (SEQ ID No: <u>7083200</u>)

Table 22-4

Probe No.	Base Sequence
91	g tgt ctg aGg ctc cct (SEQ ID No: 709 <u>3201</u>)
92	gcg gtg acA gag ctg g (SEQ ID No: 710 <u>3202</u>)
93	c ggg gtt gTt gag agc (SEQ ID No: 711 <u>3203</u>)
94	cgg cct gTt gcc gag (SEQ ID No: 712 <u>3204</u>)
95	t gcg gag Cac tgg aac (SEQ ID No: 713 <u>3205</u>)
96	g tac tct aCg ggt gag t (SEQ ID No: 714 <u>3206</u>)
97	cgg cct gCt gcc gag (SEQ ID No: 715 <u>3207</u>)
98	g tac tct aGg ggt gag t (SEQ ID No: 716 <u>3208</u>)
99	a gag gag Gac gtg cgc (SEQ ID No: 717 <u>3209</u>)
100	cgg cct aTc gcc gag (SEQ ID No: 718 <u>3210</u>)
101	c tct acg tCt gag tgt c (SEQ ID No: 719 <u>3211</u>)
102	ag tac tct aTg ggt gag t (SEQ ID No: 720 <u>3212</u>)
103	ggg gct gtG gag agc (SEQ ID No: 721 <u>3213</u>)
104	gtg cgg taT ctg cac ag (SEQ ID No: 722 <u>3214</u>)
105	gg agg cgT gcc gcg (SEQ ID No: 723 <u>3215</u>)
106	gaa aga cgc Gtc cat aac (SEQ ID No: 724 <u>3216</u>)
107	gg agg cgC gcc gcg (SEQ ID No: 725 <u>3217</u>)
108	c ctg gaa Gac agg cgc (SEQ ID No: 726 <u>3218</u>)
109	ctg gaa gaC agg cgc g (SEQ ID No: 727 <u>3219</u>)
110	ac agg cgC gcc gcg (SEQ ID No: 728 <u>3220</u>)
111	ttc ttc aaC ggg acg ga (SEQ ID No: 729 <u>3221</u>)
112	ac tct acg Ggt gag tgt (SEQ ID No: 730 <u>3222</u>)
113	c cat aac caG gag gag aa (SEQ ID No: 731 <u>3223</u>)
114	c cat aac caG gag gag tt (SEQ ID No: 732 <u>3224</u>)
115	a gag gag tTc gtg cgc (SEQ ID No: 733 <u>3225</u>)
116	c tat aac caG gag gag tt (SEQ ID No: 734 <u>3226</u>)
117	g gag gac Ttg cgc ttc (SEQ ID No: 735 <u>3227</u>)
118	c ctg gaa Gac agg cgg (SEQ ID No: 736 <u>3228</u>)
119	t acg tct gaG tgt cat ttc (SEQ ID No: 737 <u>3229</u>)
120	ttc ctg gaA gac agg cg (SEQ ID No: 738 <u>3230</u>)

Table 22-5

Probe No.	Base Sequence
121	tc ttg gag cTg ctt aag t (SEQ ID No: <u>7393231</u>)
122	g cct gat gAg gag cac (SEQ ID No: <u>7403232</u>)
123	at gag gag Cac tgg aac (SEQ ID No: <u>7413233</u>)
124	cgg gcc gTg gtg gac (SEQ ID No: <u>7423234</u>)
125	t gat gag gaC tac tgg aa (SEQ ID No: <u>7433235</u>)
126	t gat gag gGg tat tgg a (SEQ ID No: <u>7443236</u>)
127	c atg gca gtT ctg aca gt (SEQ ID No: <u>7453237</u>)
128	gtg cgg ttA ctg gag ag (SEQ ID No: <u>7463238</u>)
129	g gag gag Ctc ctg cg (SEQ ID No: <u>7473239</u>)
130	c atc ctg gGa gac agg (SEQ ID No: <u>7483240</u>)
131	gtg cgg ttC ctg gag a (SEQ ID No: <u>7493241</u>)
132	gag cgg gcT gcg gtg (SEQ ID No: <u>7503242</u>)
133	gaa gac gAg cgc gcc (SEQ ID No: <u>7513243</u>)
134	ac gag cgC gcc gcg (SEQ ID No: <u>7523244</u>)
135	ctg gaa gaC aag cgg g (SEQ ID No: <u>7533245</u>)
136	g gaa gac aAg cgg gcc (SEQ ID No: <u>7543246</u>)
137	g gag tac tCt acg tct g (SEQ ID No: <u>7553247</u>)
138	gac aga tac Ttc tat aac c (SEQ ID No: <u>7563248</u>)
139	c ggg gtt gAt gag agc (SEQ ID No: <u>7573249</u>)
140	ac aac tac Cgg gtt gtg (SEQ ID No: <u>7583250</u>)
141	cgg cct gTc gcc gag (SEQ ID No: <u>7593251</u>)
142	g gag aac Ctg cgc ttc (SEQ ID No: <u>7603252</u>)
143	g gag ttc cTg gcg gtg (SEQ ID No: <u>7613253</u>)
144	cgg cct gtC gcc gag (SEQ ID No: <u>7623254</u>)
145	c cgg gcg Ttg acg ga (SEQ ID No: <u>7633255</u>)
146	ttg gag tac Tct acg tct (SEQ ID No: <u>7643256</u>)
147	ct gag tgt caA ttc ttc aat (SEQ ID No: <u>7653257</u>)
148	cct gat gcT gag tac tg (SEQ ID No: <u>7663258</u>)
149	gt ttc ttg gAg tac tct ac (SEQ ID No: <u>7673259</u>)
150	g cgg gtg cAg ttc ctg (SEQ ID No: <u>7683260</u>)

Table 22-6

Probe No.	Base Sequence
151	c gac gtg Cgg gag tac (SEQ ID No: 769 <u>3261</u>)
152	c cct acg tCt gag tgt c (SEQ ID No: 770 <u>3262</u>)
153	g gag gag tTc ctg cgc (SEQ ID No: 771 <u>3263</u>)
154	g gag ttc CtG cgc ttc (SEQ ID No: 772 <u>3264</u>)
155	g gtg gac Gcc tat tgc (SEQ ID No: 773 <u>3265</u>)
156	g gct ttg Tct ggg gac (SEQ ID No: 774 <u>3266</u>)
157	c aac tac ggA gtt gtg ga (SEQ ID No: 775 <u>3267</u>)
158	gga gtt gtG gag agc tt (SEQ ID No: 776 <u>3268</u>)
159	cct aag agG gag tgt ca (SEQ ID No: 777 <u>3269</u>)
160	c ttc tat aaT cag gag gag (SEQ ID No: 778 <u>3270</u>)
161	ctg gac aga Cac ttc tat (SEQ ID No: 779 <u>3271</u>)
162	ag aag gac Ttc ctg gag (SEQ ID No: 780 <u>3272</u>)
163	cgg gcg gCg acg ga (SEQ ID No: 781 <u>3273</u>)
164	gc cag aag Aac atc ctg (SEQ ID No: 782 <u>3274</u>)
165	g gag ttc cAg gcg gtg (SEQ ID No: 783 <u>3275</u>)
166	caa gg gac Atc ctg gag c (SEQ ID No: 784 <u>3276</u>)
167	gac agg gCc gcc gc (SEQ ID No: 785 <u>3277</u>)
168	g cgg ttc cCg gac aga (SEQ ID No: 786 <u>3278</u>)
169	g gag ctg cGt aag tct g (SEQ ID No: 787 <u>3279</u>)
170	ctg gct ttC gct ggg g (SEQ ID No: 788 <u>3280</u>)
171	ttg gag ctg Tgt aag tct (SEQ ID No: 789 <u>3281</u>)
172	g gag ctg tGt aag tct g (SEQ ID No: 790 <u>3282</u>)
173	g tac ctg gaG aga tac tt (SEQ ID No: 791 <u>3283</u>)
174	cgg tac ctg Aac aga tac (SEQ ID No: 792 <u>3284</u>)
175	gag cag aAg cgg ggc (SEQ ID No: 793 <u>3285</u>)
176	g gag tac gCg cgc ttc (SEQ ID No: 794 <u>3286</u>)
177	ag ttc ctg Agc ttc gac (SEQ ID No: 795 <u>3287</u>)
178	cgt ttc ttg Gag ctg ctt (SEQ ID No: 796 <u>3288</u>)
179	ctg gag aga Cac ttc cat (SEQ ID No: 797 <u>3289</u>)
180	t tac tgc agG cac aac ta (SEQ ID No: 798 <u>3290</u>)

Table 22-7

Probe No.	Base Sequence
181	cct gat gcG gag tac tg (SEQ ID No: 799 <u>3291</u>)
182	g gag gag Aac gcg cg (SEQ ID No: 800 <u>3292</u>)
183	g gag aac gCg cgc ttc (SEQ ID No: 801 <u>3293</u>)
184	cgt ttc ttg Cag ctg ctt (SEQ ID No: 802 <u>3294</u>)
185	g gtg cgg Ctc ctg ga (SEQ ID No: 803 <u>3295</u>)
186	c ggg gtt gCt gag agc (SEQ ID No: 804 <u>3296</u>)
187	aac tac ggC gtt gtg ga (SEQ ID No: 805 <u>3297</u>)
188	g aca ttg aCg gtg ctg a (SEQ ID No: 806 <u>3298</u>)
189	c gag gtg gGc acc tac (SEQ ID No: 807 <u>3299</u>)
190	gtg tgg aaC ctg atc ag (SEQ ID No: 808 <u>3300</u>)
191	g gac acc taT tgc aga ta (SEQ ID No: 809 <u>3301</u>)
192	aac agt gaT ctg ggg ga (SEQ ID No: 810 <u>3302</u>)
193	tac tgc aga Tac aac tac g (SEQ ID No: 811 <u>3303</u>)
194	tgt cat ttc Ctc aat ggg (SEQ ID No: 812 <u>3304</u>)
195	ga gtg tgg Aac ctg atc (SEQ ID No: 813 <u>3305</u>)
196	c atg gca aAg ctg aca g (SEQ ID No: 814 <u>3306</u>)
197	cgt ttc ttg Cag cag gat (SEQ ID No: 815 <u>3307</u>)
198	ctg cac aga Ggc atc tat (SEQ ID No: 816 <u>3308</u>)
199	gaa gac aCg cgc gcc (SEQ ID No: 817 <u>3309</u>)
200	ac acg cgC gcc gcg (SEQ ID No: 818 <u>3310</u>)
201	c ctg gaa Aac agg cgc (SEQ ID No: 819 <u>3311</u>)
202	a ggt tcc tAc atg gca g (SEQ ID No: 820 <u>3312</u>)
203	tgt ttc ttg Cag cag gat (SEQ ID No: 821 <u>3313</u>)

Table 23-1

Allele Number		Probe Number for Detection							
DRB1*010101	0	2	3	4	5				
DRB1*010102	6								
DRB1*010201	7	8							
DRB1*010202	9								
DRB1*0103	10	11	12						
DRB1*0104	13	14							
DRB1*0105	15								
DRB1*0106	16	14							
DRB1*0107	17								
DRB1*0108	18								
DRB1*0109	19	16							
DRB1*0110	20								
DRB1*030101	21	22	23	24	25	26	27	14	
DRB1*030102	26	28	14						
DRB1*030201	29	30	31	23	24	26	27		
DRB1*030202	30	23	24	26	28				
DRB1*0303	30	31	23	24	26	27	14		
DRB1*0304	21	22	32	25	26	27	14		
DRB1*030501	21	22	23	24	25	26	27		
DRB1*030502	27	33							
DRB1*0306	21	34	22	23	24	26	27	14	
DRB1*0307	22	23	24	25	26	27	14		
DRB1*0308	23	35	36	26	27	14			
DRB1*0309	37								
DRB1*0310	38	26	27	14					
DRB1*0311	21	39	40	41	14				
DRB1*0312	42	26	27	14					
DRB1*0313	43	26	27	14					
DRB1*0314	21	22	23	24	25	26			
DRB1*0315	21	22	23	24	25	26	14		

Table 23-2

Allele Number		Probe Number for Detection							
DRB1*0316	44								
DRB1*0317	45	46	18	47	48				
DRB1*0318	49	14							
DRB1*0319	10	26	27	14					
DRB1*0320	27	8							
DRB1*0321	50	25	26	27	14				
DRB1*0322	51								
DRB1*0323	37	14							
DRB1*0324	25	39	40	48	14				
DRB1*0325	21	22	32	52	25	26	27	14	
DRB1*040101	53	20							
DRB1*040102	54								
DRB1*0402	53	12	14						
DRB1*040301	55	56	57	14					
DRB1*040302	55	58	57	14					
DRB1*0404	53	14							
DRB1*040501	55	59	60	56	61				
DRB1*040502	62								
DRB1*040503	63								
DRB1*040504	60	42	33						
DRB1*0406	55	60	57	14					
DRB1*040701	55	56	57						
DRB1*040702	64								
DRB1*0408	65	55	59	60	56				
DRB1*0409	60	61	20						
DRB1*0410	60	56	61	14					
DRB1*0411	53	57	14						
DRB1*0412	60	61	10	66	14				
DRB1*0413	60	20	14						
DRB1*0414	60	10	11	12					

Table 23-3

Allele Number		Probe Number for Detection				
DRB1*0415	55	36	67	68	14	
DRB1*0416	69					
DRB1*0417	60	61	57			
DRB1*0418	60	10	66	14		
DRB1*0419	65	55	59	60		
DRB1*0420	60	57				
DRB1*0421	60	20				
DRB1*0422	60	56	26	27	14	
DRB1*0423	70					
DRB1*0424	61	42	71			
DRB1*0425	60	56	67	66	14	
DRB1*0426	72					
DRB1*0427	56	57	8			
DRB1*0428	60	56	25	61		
DRB1*0429	73					
DRB1*0430	74					
DRB1*0431	55	60	56	75	76	
DRB1*0432	77					
DRB1*0433	78					
DRB1*0434	55	79	56	20		
DRB1*0435	55	25	20			
DRB1*0436	55	67	68	14		
DRB1*0437	55	80	81	14		
DRB1*0438	55	10	82			
DRB1*0439	83					
DRB1*0440	84					
DRB1*0441	55	85	86	57	14	
DRB1*0442	55	25	14			
DRB1*0443	55	60	25			
DRB1*0444	60	56	13	14		

Table 23-4

Allele Number		Probe Number for Detection				
DRB1*070101	87	88	89			
DRB1*070102	90	91	92	89		
DRB1*0703	93					
DRB1*0704	91	48				
DRB1*0705	94					
DRB1*0706	91	95	89			
DRB1*0707	96					
DRB1*080101	97	42	67	66	33	
DRB1*080102	98					
DRB1*080201	99	33				
DRB1*080202	97	18	67	66		
DRB1*080203	100					
DRB1*080302	45	97	61	10	66	
DRB1*080401	97	18	67	66	14	
DRB1*080402	18	67	66	101		
DRB1*080403	66	101	102			
DRB1*080404	66	14	103			
DRB1*0805	97	61	67	68		
DRB1*0806	61	67	66	14		
DRB1*0807	104	67	66	33		
DRB1*0808	38	105	66			
DRB1*0809	45	50	67	66	33	
DRB1*0810	97	61	10	66	14	
DRB1*0811	38	66	33			
DRB1*0812	10	66	8			
DRB1*0813	97	18	66	33		
DRB1*0814	106					
DRB1*0815	107	10	66			
DRB1*0816	108	33				
DRB1*0817	25	61	67	66		

Table 23-5

Allele Number		Probe Number for Detection						
DRB1*0818	45	97	61	10	109			
DRB1*0819	110	10	66					
DRB1*0820	111	18	67	66	14			
DRB1*0821	112							
DRB1*0822	8	113	114					
DRB1*0823	15	66						
DRB1*0824	97	18	67	68				
DRB1*090102	92	115						
DRB1*0902	58	115						
DRB1*100101	116							
DRB1*100102	117	118						
DRB1*110101	99	36	67	68				
DRB1*110102	36	67	68	33				
DRB1*110103	36	67	119	68	120			
DRB1*110104	121	18	25	35	67	68		
DRB1*1102	35	10	11	12	14			
DRB1*1103	99	122	14					
DRB1*110401	99	67	68	14				
DRB1*110402	36	14	103					
DRB1*1105	123	35	36	67	68			
DRB1*110601	36	67	68	8				
DRB1*110602	36	67	68	7	8			
DRB1*1107	35	36	26	27	14			
DRB1*110801	18	25	35	124				
DRB1*110802	36	124	33					
DRB1*1109	32	23	24	25	35	67	68	
DRB1*1110	22	32	50	25	35	67	68	
DRB1*1111	25	35	67	125	122			
DRB1*111201	126	25	35	67	68			
DRB1*111202	111	127	128	25	35	67	68	

Table 23-6

Allele Number		Probe Number for Detection						
DRB1*1113	25	35	36	71	7	14		
DRB1*1114	35	10	11	12				
DRB1*1115	129	36	67	119	68			
DRB1*1116	23	35	10	11	12	14		
DRB1*1117	111	35	36	130	131	14		
DRB1*1118	18	35	10	109	14			
DRB1*1119	18	35	10	109				
DRB1*1120	23	35	10	11	12			
DRB1*1121	11	12	8					
DRB1*1122	55	25	36	67	68			
DRB1*1123	35	36	67	68	132	66		
DRB1*1124	108	36	67	119	68			
DRB1*1125	36	67	66	14				
DRB1*1126	133	134	18	25	35			
DRB1*112701	135	68	13					
DRB1*112702	35	68	136					
DRB1*1128	134	137	138	25	35	67	68	
DRB1*1129	45	111	134	25	35	67	68	
DRB1*1130	139	68						
DRB1*1131	35	140	10	109				
DRB1*1132	35	36	67	68	141			
DRB1*1133	142							
DRB1*1134	18	25	35	14				
DRB1*1135	142	14						
DRB1*1136	25	35	80	81	14			
DRB1*1137	45	111	134	18	35	67	68	
DRB1*1138	143							
DRB1*1139	144	68						
DRB1*1140	23	25	35	67	125	122	14	
DRB1*1141	35	67	125	122	14			

Table 23-7

Allele Number		Probe Number for Detection							
DRB1*1142	18	25	35	124	14				
DRB1*1143	144	68	14						
DRB1*120101	145	146	147	148	92	10	7	8	
DRB1*120102	145	146	147	148	92	10	8		
DRB1*120201	148	67	7	8					
DRB1*120202	148	67	120	8					
DRB1*120302	147	148	92	10	120				
DRB1*1204	148	36	10	7	8				
DRB1*1205	147	92	10	7	8				
DRB1*1206	147	148	92	10	7	8			
DRB1*1207	149								
DRB1*1208	150	148	92	10	7	8			
DRB1*130101	46	23	24	25	10	11	12	14	
DRB1*130102	151								
DRB1*130103	12	7	14						
DRB1*130201	46	23	24	25	10	11	12		
DRB1*130202	12	152							
DRB1*130301	42	109	153	33					
DRB1*130302	61	109	153						
DRB1*1304	25	61	11	12	14				
DRB1*1305	134	32	23	25	67	68			
DRB1*1306	46	23	25	10	109	14			
DRB1*130701	154	45	111	134	46	155	18	67	119
DRB1*130702	111	46	155	18	58	67	119	68	
DRB1*1308	46	50	11	12	14				
DRB1*1309	24	25	10	156	14				
DRB1*1310	46	23	25	10	109	153	14		
DRB1*1311	18	25	67	68	14				
DRB1*1312	111	61	10	109					

Table 23-8

Allele Number		Probe Number for Detection							
DRB1*1313	111	61	10	66					
DRB1*131401	18	25	67	119	68				
DRB1*131402	25	58	67	119	68				
DRB1*1315	30	25	11	12	14				
DRB1*1316	157								
DRB1*1317	97	12	14						
DRB1*1318	23	25	67	66	14				
DRB1*1319	30	50	11	12	14				
DRB1*1320	46	23	24	25	80	81	14		
DRB1*1321	111	25	61	67	68				
DRB1*1322	111	46	18	25	10	11	12	14	
DRB1*1323	11	12	33						
DRB1*1324	25	67	125	122	14				
DRB1*1325	154	45	111	134	46	18	25	124	
DRB1*1326	31	158	23	24	58	67	119	68	120
DRB1*1327	21	11	12	14					
DRB1*1328	159								
DRB1*1329	46	23	24	25	80	81			
DRB1*1330	25	61	10	109					
DRB1*1331	104	10	11	12					
DRB1*1332	23	61	11	12	14				
DRB1*1333	61	109	136						
DRB1*1334	160	11	12						
DRB1*1335	161								
DRB1*1336	46	23	24	10	11	12			
DRB1*1337	109	153	33						
DRB1*1338	61	11	12						
DRB1*1339	43	10	11	12					
DRB1*1340	46	23	24	10	11	12	14		

Table 23-9

Allele Number		Probe Number for Detection						
DRB1*1341	21	11	12					
DRB1*1342	23	67	68	14				
DRB1*1343	25	38	80	81	14			
DRB1*1344	111	134	46	18	25	14		
DRB1*1345	25	38	10	11	12			
DRB1*1346	18	104	162	67	135	68		
DRB1*1347	111	18	67	66	33			
DRB1*1348	61	11	12	14				
DRB1*1349	111	61	67	68				
DRB1*1350	134	137	25	67	68			
DRB1*1351	163							
DRB1*1352	46	32	52	25	10	11	12	14
DRB1*1353	30	24	11	12	14			
DRB1*1354	92	125	122	14				
DRB1*1355	111	42	67	66	33			
DRB1*140101	99	111	130	131	14			
DRB1*140102	164	111	38	130	14			
DRB1*1402	99	158	23	24				
DRB1*1403	99	23	66					
DRB1*1404	99	97	130	131	14			
DRB1*140501	165	166	131	14				
DRB1*140502	165	131	14					
DRB1*1406	45	30	23	24	14			
DRB1*140701	164	111	38	130	131			
DRB1*140702	38	131	33					
DRB1*1408	164	111	107	130	131	14		
DRB1*1409	167	134	46	22	32	23		
DRB1*1410	59	38	130	131	14			
DRB1*1411	97	35	36	130	131	14		
DRB1*1412	30	23	24	66	14			

Table 23-10

Allele Number		Probe Number for Detection					
DRB1*1413	30	23	24	61			
DRB1*1414	111	50	130	131			
DRB1*1415	97	50	67	66	14		
DRB1*1416	38	10	11	12	14		
DRB1*1417	134	46	22	23	25	14	
DRB1*1418	23	24	166	130	131	14	
DRB1*1419	29	45	30	23	24	20	
DRB1*1420	133	150	30	50	14		
DRB1*1421	46	22	23	25	20	14	
DRB1*1422	50	38	105	67	135	68	
DRB1*1423	164	111	50	130	131	14	
DRB1*1424	30	158	23	24	10	168	156
DRB1*1425	111	18	38	105	67	135	68
DRB1*1426	169	14					
DRB1*1427	30	23	24	67	68	132	66
DRB1*1428	38	8	113				
DRB1*1429	30	158	23	24	8		
DRB1*1430	134	46	22	32	23	25	
DRB1*1431	97	38	7	14			
DRB1*1432	164	111	38	71	14		
DRB1*1433	24	25	57	14			
DRB1*1434	164	111	107	7	14		
DRB1*1435	25	38	130	131	14		
DRB1*1436	49	131					
DRB1*1437	165	156	14				
DRB1*1438	38	170	14				
DRB1*1439	171	38	130	131	14		
DRB1*1440	30	50	124	132	66		
DRB1*1441	45	111	150	30	50	172	
DRB1*1442	18	25	130	131			

Table 23-11

Allele Number		Probe Number for Detection						
DRB1*1443	173							
DRB1*1444	165	166	131					
DRB1*1445	165	10	131	14				
DRB1*150101	174							
DRB1*150102	175	176						
DRB1*150103	177	7	14					
DRB1*150104	177	25	10	156	14			
DRB1*150201	177	25	58	10	156			
DRB1*150202	25	10	168	156				
DRB1*150203	178							
DRB1*1503	177	179	25	58	10	156	14	
DRB1*1504	177	67	180	14				
DRB1*1505	177	25	58	16	14			
DRB1*1506	181							
DRB1*1507	177	58	10	156	14			
DRB1*1508	182							
DRB1*1509	183	156						
DRB1*1510	177	12	14					
DRB1*1511	177	58	10	156				
DRB1*1512	177	61	42	10	156	14		
DRB1*1513	177	25	58	184	156	14		
DRB1*160101	177	67	120					
DRB1*160102	177	67	68					
DRB1*160201	177	120						
DRB1*160202	177	124						
DRB1*1603	185							
DRB1*1604	127	58	67	68	132	66		
DRB1*1605	177	10	120					
DRB1*1607	186							
DRB1*1608	177	187	67	120				

Table 23-12

Allele Number		Probe Number for Detection					
DRB3*010101	188	34	172	162	26	28	
DRB3*01010201	189	26					
DRB3*010103	188	34	172	26	28		
DRB3*010104	28	175					
DRB3*0102	190	191	34	172	162	26	28
DRB3*0103	188	192	172	162	26	28	
DRB3*0104	193	34	172	162	26	28	
DRB3*0105	194	28					
DRB3*0106	188	34	50	162	26	28	
DRB3*0107	188	20	40	48			
DRB3*0108	188	23	24	162	26	28	
DRB3*0109	188	195	162	26	28		
DRB3*0110	196						
DRB3*0201	189	14					
DRB3*020201	197	198	195	47	48		
DRB3*020202	198	195	47	40	41		
DRB3*020203	199						
DRB3*020204	47	200	48				
DRB3*0203	198	201	47	48			
DRB3*0204	47	26	27	14			
DRB3*0205	30	195	47	48			
DRB3*0206	23	202	47	48			
DRB3*0207	47	104	162	48			
DRB3*0208	47	61	42	48			
DRB3*0209	195	92	40	48			
DRB3*0210	197	198	195	40	48		
DRB3*0211	47	10	48				
DRB3*0212	198	195	47	48			
DRB3*0213	203						
DRB3*0214	204						

Table 23-13

Allele Number		Probe Number for Detection					
DRB3*0215	198	195	47	40			
DRB3*0216	47	105	48				
DRB3*0217	47	67	48				
DRB3*030101	92	48	14				
DRB3*030102	205						
DRB3*0302	198	92	48	14			
DRB3*0303	30	50	162	92	26	28	
DRB4*010101	206						
DRB4*0102	207						
DRB4*010302	208	209	210				
DRB4*010303	206	131					
DRB4*010304	211						
DRB4*0104	212	213					
DRB4*0105	208	214					
DRB4*0106	208	209	210				
DRB4*0201N	87	14					
DRB5*010101	215						
DRB5*010102	129	58	67	119	68		
DRB5*0102	2	216	217	67	119	120	
DRB5*0103	218	219	220				
DRB5*0104	129	66					
DRB5*0105	108	67	119	120			
DRB5*0106	129	113					
DRB5*0107	129	10	221	120			
DRB5*0109	222						
DRB5*0110N	218	217	67	119	120		
DRB5*0111	129	156					
DRB5*0112	129	223	224	225			
DRB5*0202	226	113					
DRB5*0203	218	217	10	168	156		
DRB5*0204	218	67	180	113			
DRB5*0205	218	217	113				

Table 24-1

Allele Number	Probe Number for Detection						
DRB1*010101	0	1	2	3	4	5	
DRB1*010102	6						
DRB1*010201	7	8					
DRB1*010202	9						
DRB1*0103	10	11	12				
DRB1*0104	13	14					
DRB1*0105	15						
DRB1*0106	16	14					
DRB1*0107	17						
DRB1*0108	18						
DRB1*0109	19	16					
DRB1*0110	20						
DRB1*030101	21	22	23	14			
DRB1*030102	24	13	14				
DRB1*030201	21	25	23				
DRB1*030202	21	13					
DRB1*0303	25	26	27	28	24	23	14
DRB1*0304	22	26	29	30	24	23	14
DRB1*030501	22	26	27	28	30	24	23
DRB1*030502	23	31					
DRB1*0306	22	32	26	27	28	24	23
DRB1*0307	21	23	14				
DRB1*0308	21	33	34	23	14		
DRB1*0309	35						
DRB1*0310	36	24	23	14			
DRB1*0311	22	37	38	23	14		
DRB1*0312	39	40	24	23			
DRB1*0313	41	24	23	14			
DRB1*0314	22	26	27	28	30	24	

Table 24-2

Allele Number	Probe Number for Detection							
DRB1*0315	22	26	27	28	30	24	14	
DRB1*0316	42							
DRB1*0317	43	44	18	45	13			
DRB1*0318	46	14						
DRB1*0319	47	24	23	14				
DRB1*0320	23	8						
DRB1*0321	48	30	24	23	14			
DRB1*0322	49							
DRB1*0323	35	14						
DRB1*0324	30	37	38	13	14			
DRB1*0325	22	26	50	51	30	24	23	14
DRB1*040101	52	20						
DRB1*040102	53							
DRB1*0402	52	12	14					
DRB1*040301	54	18	55	14				
DRB1*040302	54	56	55	14				
DRB1*0404	52	14						
DRB1*040501	54	57	58	18	39			
DRB1*040502	59							
DRB1*040503	54	57	58	18	39			
DRB1*040504	58	40	31					
DRB1*0406	54	58	55	14				
DRB1*040701	54	18	55					
DRB1*040702	60							
DRB1*0408	61	54	57	58	18			
DRB1*0409	58	39	20					
DRB1*0410	58	18	39	14				
DRB1*0411	52	55	14					
DRB1*0412	58	39	10	62	14			
DRB1*0413	58	20	14					

Table 24-3

Allele Number	Probe Number for Detection					
DRB1*0414	58	10	11	12		
DRB1*0415	54	58	34	63	64	
DRB1*0416	65					
DRB1*0417	58	39	55			
DRB1*0418	58	10	62	14		
DRB1*0419	61	54	57	58		
DRB1*0420	58	55				
DRB1*0421	61	54	57	20		
DRB1*0422	58	18	24	23	14	
DRB1*0423	66					
DRB1*0424	39	40	67			
DRB1*0425	58	18	63	64	68	62
DRB1*0426	69					
DRB1*0427	18	55	8			
DRB1*0428	58	18	30	39		
DRB1*0429	70					
DRB1*0430	71					
DRB1*0431	54	58	18	68	62	
DRB1*0432	72					
DRB1*0433	73					
DRB1*0434	74	75	18	20		
DRB1*0435	54	30	20			
DRB1*0436	54	63	64	14		
DRB1*0437	54	11	12	14		
DRB1*0438	54	47	20			
DRB1*0439	76					
DRB1*0440	77					
DRB1*0441	54	78	79	55	14	
DRB1*0442	54	30	14			
DRB1*0443	54	58	30			

Table 24-4

Allele Number	Probe Number for Detection				
DRB1*0444	58	18	13	14	
DRB1*070101	80	37	81		
DRB1*070102	82	83	84	81	
DRB1*0703	85				
DRB1*0704	83	13			
DRB1*0705	86				
DRB1*0706	83	87	81		
DRB1*0707	88				
DRB1*080101	89	40	63	62	31
DRB1*080102	90				
DRB1*080201	91	31			
DRB1*080202	89	18	63	62	
DRB1*080203	92				
DRB1*080302	21	10	62		
DRB1*080401	21	62	14		
DRB1*080402	18	63	62	93	
DRB1*080403	62	93	31		
DRB1*080404	62	14	31		
DRB1*0805	89	39	63	64	
DRB1*0806	39	63	62	14	
DRB1*0807	94	63	62	31	
DRB1*0808	36	95	62		
DRB1*0809	96	48	63	62	31
DRB1*0810	89	39	10	62	14
DRB1*0811	97	62			
DRB1*0812	10	62	8		
DRB1*0813	96	89	18	62	
DRB1*0814	98				
DRB1*0815	95	10	62		
DRB1*0816	99	31			

Table 24-5

Allele Number	Probe Number for Detection						
DRB1*0817	30	39	63	62			
DRB1*0818	96	89	39	10	64		
DRB1*0819	100	10	62				
DRB1*0820	101	18	63	62	14		
DRB1*0821	102						
DRB1*0822	8	103	31				
DRB1*0823	15	62					
DRB1*0824	89	18	63	64			
DRB1*090102	104	84					
DRB1*0902	104	56					
DRB1*100101	105						
DRB1*100102	106	107					
DRB1*110101	91	34	63	64			
DRB1*110102	34	63	64	31			
DRB1*110103	34	63	108	109	110		
DRB1*110104	111	18	30	33	63	64	
DRB1*1102	21	34	10	11	12	14	
DRB1*1103	91	12	14				
DRB1*110401	91	63	64	14			
DRB1*110402	34	14	31				
DRB1*1105	112	33	34	63	64		
DRB1*110601	34	63	64	8			
DRB1*110602	34	63	64	7	8		
DRB1*1107	33	34	24	23	14		
DRB1*110801	18	30	33	64			
DRB1*110802	18	30	33	64			
DRB1*1109	113	27	28	30	33	63	64
DRB1*1110	26	114	48	30	33	63	64
DRB1*1111	30	33	63	11	12		
DRB1*111201	115	30	33	63	64		

Table 24-6

Allele Number	Probe Number for Detection						
DRB1*111202	101	116	48	30	33	63	64
DRB1*11113	21	30	33	67	7	14	
DRB1*11114	21	34	10	11	12		
DRB1*11115	117	34	63	118	64		
DRB1*11116	27	33	10	11	12	14	
DRB1*11117	21	33	55	7	14		
DRB1*11118	18	33	10	64	14		
DRB1*11119	18	33	10	64			
DRB1*1120	27	33	10	11	12		
DRB1*1121	33	10	11	12			
DRB1*1122	54	30	34	63	64		
DRB1*1123	33	34	63	64	68	62	
DRB1*1124	99	34	63	118	64		
DRB1*1125	34	63	62	14			
DRB1*1126	43	101	119	18	30	33	
DRB1*112701	120	64	13				
DRB1*112702	33	64	23				
DRB1*1128	119	78	79	30	33	63	64
DRB1*1129	43	101	119	30	33	63	64
DRB1*1130	121	64					
DRB1*1131	122	123	10	64			
DRB1*1132	33	34	63	64	124		
DRB1*1133	125						
DRB1*1134	18	30	33	14			
DRB1*1135	125	14					
DRB1*1136	30	33	11	12	14		
DRB1*1137	43	101	119	18	33	63	64
DRB1*1138	126						
DRB1*1139	45	64					
DRB1*1140	27	30	33	63	11	12	

Table 24-7

Allele Number	Probe Number for Detection								
DRB1*1141	33	63	11	12	14				
DRB1*1142	18	30	33	64	14				
DRB1*1143	45	64	14						
DRB1*120101	127	21	128	129	84	10	7	8	
DRB1*120102	127	21	128	129	84	10	8		
DRB1*120201	129	63	7	8					
DRB1*120202	129	63	110						
DRB1*120302	128	129	84	10	110				
DRB1*1204	129	34	10	7					
DRB1*1205	128	84	10	7	8				
DRB1*1206	21	128	129	84	10	7	8		
DRB1*1207	130								
DRB1*1208	131	129	84	10	7	8			
DRB1*130101	21	27	30	10	11	12	14		
DRB1*130102	132								
DRB1*130103	12	7	14						
DRB1*130201	21	27	30	10	11	12			
DRB1*130202	133	134							
DRB1*130301	40	135	136	31					
DRB1*130302	39	135	136						
DRB1*1304	21	40	10	11	12	14			
DRB1*1305	119	113	27	30	63	64			
DRB1*1306	44	27	30	10	64	14			
DRB1*130701	137	43	101	119	44	138	18	63	118
DRB1*130702	101	44	138	18	56	63	118	64	
DRB1*1308	44	48	11	12	14				
DRB1*1309	28	30	47	16	14				
DRB1*1310	44	27	30	10	135	136	14		
DRB1*1311	18	30	63	64	14				

Table 24-8

Allele Number	Probe Number for Detection							
DRB1*1312	101	39	10	64				
DRB1*1313	101	39	10	62				
DRB1*131401	18	30	63	118	64			
DRB1*131402	30	56	63	118	64			
DRB1*1315	25	30	11	12	14			
DRB1*1316	139							
DRB1*1317	21	89	30	10	11	12	14	
DRB1*1318	27	30	63	62	14			
DRB1*1319	21	48	10	11	12	14		
DRB1*1320	44	27	28	30	11	12	14	
DRB1*1321	21	40	63	64				
DRB1*1322	101	44	18	30	10	11	12	14
DRB1*1323	11	12	31					
DRB1*1324	30	63	11	12	14			
DRB1*1325	137	43	101	119	44	18	30	64
DRB1*1326	26	113	27	28	56	63	108	109 110
DRB1*1327	22	11	12	14				
DRB1*1328	140							
DRB1*1329	44	27	28	30	11	12		
DRB1*1330	30	39	10	64				
DRB1*1331	141	10	11	12				
DRB1*1332	27	39	11	12	14			
DRB1*1333	39	135	23					
DRB1*1334	142	11	12					
DRB1*1335	143							
DRB1*1336	44	27	28	10	11	12		
DRB1*1337	135	136	31					
DRB1*1338	39	11	12					
DRB1*1339	41	10	11	12				

Table 24-9

Allele Number	Probe Number for Detection							
DRB1*1340	44	27	28	10	11	12	14	
DRB1*1341	22	11	12					
DRB1*1342	27	63	64	14				
DRB1*1343	30	36	11	12	14			
DRB1*1344	101	119	44	18	30	14		
DRB1*1345	30	36	10	11	12			
DRB1*1346	18	141	144	63	120	64		
DRB1*1347	101	18	63	62	31			
DRB1*1348	39	11	12	14				
DRB1*1349	101	39	63	64				
DRB1*1350	119	78	30	63	64			
DRB1*1351	145							
DRB1*1352	44	50	51	30	10	11	12	14
DRB1*1353	25	28	11	12	14			
DRB1*1354	84	11	12	14				
DRB1*1355	101	40	63	62	31			
DRB1*140101	91	101	55	7	14			
DRB1*140102	146	101	36	67	55			
DRB1*1402	91	27	28					
DRB1*1403	91	27	62					
DRB1*1404	91	89	55	7	14			
DRB1*140501	147	148	7	14				
DRB1*140502	147	7	14					
DRB1*1406	149	43	25	27	28	14		
DRB1*140701	146	101	36	55	7			
DRB1*140702	36	7	31					
DRB1*1408	146	101	95	55	7	14		
DRB1*1409	43	119	44	26	113	27		
DRB1*1410	57	36	55	7	14			
DRB1*1411	89	33	34	55	7			
DRB1*1412	25	27	28	64	68	62		

Table 24-10

Allele Number	Probe Number for Detection						
DRB1*1413	25	27	28	39			
DRB1*1414	146	101	48	55	7		
DRB1*1415	89	48	63	62	14		
DRB1*1416	48	36	10	11	12		
DRB1*1417	119	44	26	27	30	14	
DRB1*1418	27	28	148	55	7	14	
DRB1*1419	21	25	27	28	20		
DRB1*1420	43	101	131	25	48		
DRB1*1421	44	26	27	30	20		
DRB1*1422	48	36	95	63	120	64	
DRB1*1423	146	101	48	55	7	14	
DRB1*1424	25	113	27	28	47	19	16
DRB1*1425	101	18	36	95	63	120	64
DRB1*1426	150	14					
DRB1*1427	25	27	28	63	64	68	62
DRB1*1428	36	8	103				
DRB1*1429	25	113	27	28	8		
DRB1*1430	119	44	26	113	27	30	
DRB1*1431	89	36	7	14			
DRB1*1432	146	101	36	67	14		
DRB1*1433	28	30	55	14			
DRB1*1434	146	101	95	7	14		
DRB1*1435	30	36	55	7	14		
DRB1*1436	151	7					
DRB1*1437	147	16	14				
DRB1*1438	36	13	14				
DRB1*1439	152	36	55	7	14		
DRB1*1440	25	48	64	68	62		
DRB1*1441	43	101	131	25	153	154	
DRB1*1442	18	30	55	7			
DRB1*1443	155						

Table 24-11

Allele Number	Probe Number for Detection						
DRB1*1444	147	148	7				
DRB1*1445	147	47	7	14			
DRB1*150101	156						
DRB1*150102	157	158					
DRB1*150103	159	7	14				
DRB1*150104	159	30	47	16	14		
DRB1*150201	159	30	56	47	16		
DRB1*150202	30	47	19	16			
DRB1*150203	160						
DRB1*1503	159	161	30	56	47	16	14
DRB1*1504	159	162	16	14			
DRB1*1505	159	30	56	16	14		
DRB1*1506	163						
DRB1*1507	159	56	47	16			
DRB1*1508	164						
DRB1*1509	165	16					
DRB1*1510	159	12					
DRB1*1511	159	56	47	16			
DRB1*1512	159	39	40	47	16	14	
DRB1*1513	159	30	56	166	16	14	
DRB1*160101	159	63	110				
DRB1*160102	159	63	64				
DRB1*160201	159	110					
DRB1*160202	159	64					
DRB1*1603	167						
DRB1*1604	159	62					
DRB1*1605	159	10	110				
DRB1*1607	168						
DRB1*1608	159	28	63	110			
DRB3*010101	169	32	154	144	24	13	
DRB3*01010201	170	24					

Table 24-12

Allele Number	Probe Number for Detection						
DRB3*010103	169	32	154	24	13		
DRB3*010104	169	32	154	144	24	13	
DRB3*0102	171	172	32	154	144	24	13
DRB3*0103	169	173	154	144	24	13	
DRB3*0104	169	32	154	144	24	13	
DRB3*0105	174	13					
DRB3*0106	169	32	48	144	24	13	
DRB3*0107	169	175	38	13			
DRB3*0108	169	27	28	144	24	13	
DRB3*0109	169	176	144	24	13		
DRB3*0110	177						
DRB3*0201	170	14					
DRB3*020201	178	179	176	45	13		
DRB3*020202	178	179	176	45	38	23	
DRB3*020203	180						
DRB3*020204	45	181	13				
DRB3*0203	179	29	45	13			
DRB3*0204	45	24	23	14			
DRB3*0205	178	25	176	45	13		
DRB3*0206	182	183	45	13			
DRB3*0207	45	141	144	13			
DRB3*0208	45	39	40	13			
DRB3*0209	176	84	38	13			
DRB3*0210	178	179	176	38	13		
DRB3*0211	45	47	13				
DRB3*0212	184	13					
DRB3*0213	185						
DRB3*0214	186						
DRB3*0215	178	179	176	45	38		
DRB3*0216	45	95	13				
DRB3*0217	45	162	13				

Table 24-13

Allele Number	Probe Number for Detection					
DRB3*030101	84	13	14			
DRB3*030102	187					
DRB3*0302	179	48	84	175	38	13
DRB3*0303	25	48	144	84	24	13
DRB4*010101	188					
DRB4*0102	189					
DRB4*010302	80	190	14			
DRB4*010303	188	191				
DRB4*010304	192					
DRB4*0104	23	193				
DRB4*0105	194	195				
DRB4*0106	194	190	193			
DRB4*0201N	80	14				
DRB5*010101	196					
DRB5*010102	117	56	63	118	64	
DRB5*0102	197	78	63	108	110	
DRB5*0103	198	199	200			
DRB5*0104	117	62				
DRB5*0105	99	63	108	110		
DRB5*0106	117	103				
DRB5*0107	117	10	108	110		
DRB5*0109	201					
DRB5*0110N	197	78	63	108	110	
DRB5*0111	117	16				
DRB5*0112	117	84	67	81		
DRB5*0202	202	103				
DRB5*0203	198	78	47	19	16	
DRB5*0204	203	162	16	103		
DRB5*0205	203	78	103			

(Example 13)

Probes for identification of HLA-MICA allele

Extraction of DNA from 1 ml of human blood was performed using GFX Genomic Blood DNA Purification
 5 Kit from Amersham Biosciences in the same manner as in Example 1.

Next, quantitative PCR was carried out in the same manner as in Example 1 except that probes in Tables 25-1 and 25-2 were used and 2 μ l of the mixed
 10 primers consisting of 1 μ l each of respective solutions of the following primers (10 pmol/ μ l) and 6 μ l of ultra pure water:

AGTGGAGCCAGTGGACCCAAGA (SEQ ID NO: ~~104~~3423)

TGATGTTTTCTTCTTACAACAAC (SEQ ID NO: ~~105~~3424)

15 After PCR amplification, referring to Amp Plot and Dissociation curves on a display of 5700 software, and to the allele-probe list 1 (Tables 27-1 and 27-2), it was identified as MICA*00201.

(Example 14)

20 Extraction of DNA from 1 ml of human blood was performed in the same way as in Example 3. PCR of human HLA-MICA was then performed in the same manner as in Example 2 except that 3 μ l of the mixed primer consisting of 1 μ l each of the solutions containing
 25 the following sequences at 10 pmol/ μ l respectively, and 12 μ l of ultra pure water were used:

GTCTTCGTTATAACCTCACGGT (SEQ ID NO:~~106~~3425)

GCTCGTGAGCCTGCAGGTCCTG (SEQ ID NO:~~107~~3426)

AGTGGAGCCAGTGGACCCAAGA (SEQ ID NO:~~108~~3427)

At the same time, a DNA microarray was prepared
 5 to identify the allele in the specimen described
 above in the same manner as in Example 2, except that
 probes in the probe list of Table 26-1 were used to
 form the probe spots respectively.

Then, hybridization was performed using the
 10 above specimen and the prepared DNA microarray in the
 same manner as in Example 2. The DNA microarray was
 air-dried and the fluorometry measurement was
 conducted with GenePix4000B (Axon). Referring to the
 allele-probe correspondence list 2 (Tables 28-1 and
 15 28-2), it was identified as MICA*00201.

Allele list

MICA*001

gtcttcgttataacctcacggtgctgtcctgggatggatctgtgcagtcagggtttctcactgaggtagcatctgga
 20 tggtcagcccttctcgcgtgtgacaggcagaaatgcagggcaaagccccaggacagtgggcagaagatgtcctg
 ggaaataagacatgggacagagagaccagAgacttgacagggaacggaaggacctcaggatgacctggctcata
 tcaaggaccagaaagaaggcttgattccctccaggagattagggtctgtgagatccatgaagacaacagcaccag
 gagctcccagcatttctactacgatggggagcttctcctctcccaaacctggagactAaggaatggacaatgcc
 cagtcctccagagctcagaccttgccatgaacgtcaggaatttcttgaaggaagatgcatgaagaccaagacac
 25 actatcacgctatgcatgcagactgcctgcaggaaactacggcgatatctaAaatccGgcgtagtctcaggagAAC
 agtgcccccatggtgaatgtcaccgcagcgaggcctcagagggaacattaccgtgacatgcagggttctggc
 ttctatccctggaatatcactgaGctggcgtcaggatggggtatctttgagccacgacaccagcagtgggggg

atgtcctgcctgatgggaatggaacctaccagacctgggtggccaccaggatttgcgaaggagaggagcagaggtt
cacctgctacatggaacacagcgggaatcacagcactcacctgtgccctctgggaaagtgtgtgtcttcagagt
cattggcagacattccatgtttctgctgttgctgctNNNgtctgctNNNNNNNNNNNNNNNNNNNAtttttgttatta
ttattttctatgtccgttggtgtaagaagaaaacatcagctgcagagggtccagagctcgtgagcctgcaggtcct
5 ggatcaacacccagttgggacgagtgaccacagggatgccacacagctcggatttcagcctctgatgtcagatctt
gggtccactggctccact (SEQ ID NO:4093428)

MI CA*00201

[illegible]

MI CA*00202

gtcttcgttataaacctcacgggtgctgtccGgggatggatctgtgcagtcagggtttctcgctgaggtacatctgga
25 tggtcagcccttctctgcgtgtgacaggcagaaatgcaggggcaagcccccagggacagtgggcagaagatgtctctg
ggaaataagacatgggacagagagaccagggttgacagggaacggaaaggacctcaggatgacctggctcata
tcaaggaccagaaagaaggcttgcatccctccaggagattagggtctgtgagatccatgaagacaacagcaccag

gagctcccagcattttctactacgatggggagctcttctctcccaaacctggagactgaggaatggacaatgcc
 cagtcctccagagctcagaccttggccatgaacgtcaggaattttctgaaggaagatgccatgaagaccaagacac
 actatcacgctatgcatgcagactgcctgcaggaactacggcgatatctaaaatccggcgtagtctgaggagaac
 agtgcccccatggtgaatgtcaccgcagTgaggcctcagagggaacattaccgtgacatgcagggttctggc
 5 ttctatccctggaatatcacactgagctggcgtcaggatggggtatctttgagccacgacaccagcagtgggggg
 atgtcctgcctgatgggaatggaacctaccagacctgggtggccaccaggatttgccaaggagaggagcagaggtt
 cacctgctacatggaacacagcgggaatcacagcactcacctgtgccctctg (SEQ ID NO:443430)

MICA*004

gtcttcgttataacctcacggtgctgtcctgggatggatctgtgcagtcagggtttcttgctgaggtacatctgga
 10 tggtcagcccttctgcgctatgacaggcagaaatgcaggggcaaagccccaggacagtgggcagaagatgtcctg
 ggaaataagacatgggacagagagaccagggaacttgacagggaacggaaaggacctcaggatgacctgggtcata
 tcaaggaccagaaagaaggcttgcatccctccaggagattagggtctgtgagatccatgaagacaacagcaccag
 gagctcccagcattttctactacgatggggagctcttctctcccaaacctggagactgaggaatggacagtgcc
 cagtcctccagagctcagaccttggccatgaacgtcaggaattttctgaaggaagatgccatgaagaccaagacac
 15 actatcacgctatgcatgcagactgcctgcaggaactacggcgatatctagaatccagcgtagtctgaggagaaG
 agtgcccccatggtgaatgtcaccgcagcaggcctcagagggaacatcacctgacatgcagggttccagc
 ttctatccccggaatatcacactgacctggcgtcaggatggggtatctttgagccacgacaccagcagtgggggg
 atgtcctgcctgatgggaatggaacctaccagacctgggtggccaccaggatttgccaaggagaggagcagaggtt
 cacctgctacatggaacacagcgggaatcacagcactcacctgtgccctctgggaaagtgtggtgcttcagagt
 20 cattggcagacattccatgtttctgctgttgctgctgctgctgctgctatTTTTTTgtattatttttctatgtcc
 gttgttgaagaagaaaacatcagctgcagagggtccagagctcgtgagcctgcagggtcctggatcaacaccagt
 tgggacgagtgaccacagggatgccacacagctcggatttcagcctctgatgtcagGtcttgggtccactgggtcc
 act (SEQ ID NO:4423431)

MICA*005

gtcttcgttataacctcacggtgctgtcctgggatggatctgtgcagtcagggtttcttgctgaggtacatctgga
 25 tggtcagcccttctgcgctAtgacaggcagaaatgcaggggcaaagccccaggacagtgggcagaagatgtcctg
 ggaaataagacatgggacagagagaccagggaacttgacagggaacggaaaggacctcaggatgacctgggtcata

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gagctcccagcattttactacgatggggagctcttcctctccaaaacctggagactgaggaatggacaGtgccc
cagtcctccagagctcagaccttgccatgaacgtcaggaattttcttgaaggaagatgccatgaagaccaagacac
actatcacgctatgcatgcagactgcctgcaggaactacggcgatatctaaaatccggcgtagtctgaggagaac
5 agtgcaccccatggtgaatgtcaccgcagcgaggcctcagaggcaacattaccgtgacatgcagggttccagc
ttctatccccggaatatcacactgaGctggcgtcaggatgggggtatctttgagccacgacaccagcagtgggggg
atgtcctgcctgatgggaatggaacctaccagacctgggtggccaccaggatttgcGaggagaggagcagaggtt
cacctgctacatggaacacagcggaatcacagcactcacctgtgccctct (SEQ ID NO:443432)

MICA*006

10 gtcttcgttataacctcacggtgctgtcctgggatggatctgtgcagtcagggtttcttgcctgaggtacatctgga
tggtcagcccttctgcgctatgacaggcagaaatgcagggcaaagccccaggacagtgggcagaagatgtcctg
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gagctcccagcattttactacgatggggagctcttcctctccaaaacctggagactgaggaatggacagtcccc
15 cagtcctccagagctcagaccttgccatgaacgtcaggaattttcttgaaggaagatgccatgaagaccaagacac
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20 cacctgctacatggaacacagcggaatcacagcactcacctgtgccctctgggaaagtgtggtgcttcagagt
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gttggttgaagaagaaaacatcagctgcagagggtccagagctcgtgagcctgcaggctcctggatcaacaccagt
tgggacgagtgaccacagggatgccacacagctcggatttcagcctctgatgtcagctcttgggtccactggctcc
act (SEQ ID NO:443433)

25 MICA*00701

gtcttcgttataacctcacggtgctgtcctgggatggatctgtgcagtcagggtttctcgctgaggtacatctgga
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ggaaataagacatgggacagagagaccagggacttgacagggaacggaaaggacctcaggatgacctggctcata
 tcaaggaccagaaagaaggcttgcatccctccaggagattagggctctgtgagatccatgaagacaacagcaccag
 gagctcccagcattttactacgatggggagctcttccctctccaaaacctggagactgaggaatggacaatgccc
 cagtcctccagagctcagaccttgccatgaacgtcaggaatttcttgaaggaagatgcatgaagaccaagacac
 5 actatcacgctatgcatgcagactgcctgcaggaactacggcgatatctaaaatccggcgtagtcctgaggagaac
 agtgcaccccatggtgaatgtcacccgcagTgaggcctcagagggaacattaccgtgacatgcagggttctggc
 ttctatccctggaatatcacactgagctggcgtaggatgggtatctttgagccacgacaccagcagtgggggg
 atgtcctgcctgatgggaatggaacctaccagacctgggtggccaccaggatttgccaaggagaggagcagaggtt
 cacctgctacatggaacacagcgggaatcacagcactcacctgtgccctctgggaaagtgtggtgcttcagagt
 10 cattggcagacattccatgtttctgctgttgctgctgctgctattttgttattattttctatgtccgttgtt
 gtaagaagaaaacatcagctgcagaggtccag (SEQ ID NO:4153434)

MICA*00702

gtcttcgttataacctcacggtgctgtcctgggatggatctgtgcagtcagggtttctcgctgaggtagatctgga
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 15 ggaaataagacatgggacagagagaccagGgacttgacagggaacggaaaggacctcaggatgacctggctcata
 tcaaggaccagaaagaaggcttgcatccctccaggagattagggctctgtgagatccatgaagacaacagcaccag
 gagctcccagcattttactacgatggggagctcttccctctccaaaacctggagactGaggaatggacaatgccc
 cagtcctccagagctcagaccttgccatgaacgtcaggaatttcttgaaggaagatgcatgaagaccaagacac
 actatcacgctatgcatgcagactgcctgcaggaactacggcgatatctaaaatccggcgtagtcctgaggagaac
 20 agtgcaccccatggtgaatgtcacccgcagcaggcctcagagggaacattaccgtgacatgcagggttctggc
 ttctatccctggaatatcacactgagctggcgtaggatgggtatctttgagccacgacaccagcagtgggggg
 atgtcctgcctgatgggaatggaacctaccagacctgggtggccaccaggatttgccaaggagaggagcagaggtt
 cacctgctacatggaacacagcgggaatcacagcactcacctgtgccctctg (SEQ ID NO:4163435)

MICA*00801

25 gtcttcgttataacctcacggtgctgtcctgggatggatctgtgcagtcagggtttcttgctgaggtagatctgga
 tggtagcccttctcgctatgacaggcagaaatgcaggggcaagccccaggacagtgggcagaagatgtcctg
 ggaaataagacatgggacagagagaccagggacttgacagggaacggaaaggacctcaggatgacctggctcata

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cagtcctccagagctcagaccttgccatgaacgtcaggaatttcttgaaggaagatgccatgaagaccaagacac
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5 agtgccccccatggtgaatgtcaccgcagcgaggcctcagagggaacatcacctgacatgcagggttccagc
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cacctgctacatggaacacagcggggaatcacagcactcacctgtgccctctgggaaagtgctggtgcttcagagt
cattggcagacattccatgtttctgctgttgctgctggctgctgctattttgttattattattttctatgtccgt
10 tgttgtaagaagaaaacatcagctgcagagggtccagagctcgtgagcctgcaggctcctggatcaacaccagttg
ggacgagtgaccacagggatgccacacagctcggatttcagcctctgatgtcagctcttgggtccactggctccac
t (SEQ ID NO: 1173436)

MI CA*00802

gtcttcgttataacctcacgggtgctgtccctgggatggatcgtgtgcagtcagggtttcttctgctgaggtacatctgga
15 tggtcagcccttctctgcctatgacaggcagaaatgcaggggcaaaagccccaggggacagtgggcagaaagatgtcctg
ggaaataagacatgggacagagagaccagggacttgacaggggaacggaaaggacctcaggatgacctgggtcata
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gagctcccagcatttctactacgatgggggagctcttctctccaaaacctggagactgaggaatggacagtgcc
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MI CA*026

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MI CA*027

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MICA*031

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MICA*032

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20 MICA*033

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MICA*034

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MICA*035

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MICA*036

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MICA*037

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MICA*038

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MICA*039

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25 MICA*040

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10 MICA*041

[illegible]

MI CA*042

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MICA*043

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atgtcctgcctgatgggaatggaacctaccagacctgggtggccaccaggatttccaaggagaggagcagagTtt
20 cacctgctacatggaacacagcggaatcacagcactcacctgtgccctctgggaaagtgtggtgcttcagagt
cattggcagacattccatgtttctgctgttgctgctgctgctatttttgttattattttctatgtctgtgtt
gtaagaagaaaacatcagctgcagagggtccag (SEQ ID NO:1563475)

MICA*044

25 gtcttcgttataacctcacggtgctgtccggggatggatctgtgcagtcagggtttctcgctgaggtacatctgga
tggtcagcccttctgcgctatgacaggcagaaatgcagggcaaagccccagggacagtgggcagaagatgtcctg
ggaaataagacatgggacagagagaccagggaacttgacagggaacggaaaggacctcaggatgacctggctcata
tcaaggaccagaaagaaggcttgcatccctccaggagattagggctctgtgagatccatgaagacaacagcaccag

gagctcccagcatttttactacgatggggagctcttctctctccaaaacgtggagactgaggaatggacagtgcc
 cagtcctccagagctcagaccttggccatgaacgtcaggaattttcttgaaggaagatgccatgaagaccaagacac
 actatcacgctatgcatgcagactgcctgcaggaactacggcgatatctagaatccagcgtagtctgaggagaaG
 agtgcccccatggtgaatgtcaccgcagcgaggcctcagagggaacatcacctgacatgcagggttccagc
 5 ttctatccccggaatatcacactgaGctggcgtcaggatggggtatctttgagccacgacaccagcagtgggggg
 atgtcctgcctgatgggaatggaacctaccagacctgggtggccaccaggatttgcaaggagaggagcagaggtt
 cacctgctacatggaacacagcgggaatcacagcactcacctgtgccctctg (SEQ ID NO:1573476)

MICA*045

gtcttcgttataacctcacggtgctgtcctgggatggatctgtgcagtcagggtttctcgtgaggtacatctgga
 10 tggtcagcccttctcgcgtgtgacaggcagaaatgcaggggcaaagccccaggacagtgggcagaagatgtcctg
 ggaaataagacatgggacagagagaccagggaacttgacagggaacggaaaggacctcaggatgacctggctcata
 tcaaggaccagaaagaaggcttgcattccctccaggagattagggtctgtgagatccatgaagacaacagcaccag
 gagctcccagcatttttactacgatggggagctcttctctctccaaaacgtggagactgaggaatggacaatgcc
 cagtcctccagagctcagaccttggccatgaacgtcaggaattttcttgaaggaagatgccatgaagaccaagacac
 15 actatcacgctatgcatgcagactgcctgcaggaactacggcgatatctaaaatccggcgtagtctgaggagaa
 agtgcccccatggtgaatgtcaccgcagtgaggcctcagagggaacattaccgtgacatgcagggttcttgcc
 ttctatccctggaatatcacactgagctggcgtcaggatggggtatctttgagccacgacaccagcagtgggggg
 atgtcctgcctgatgggaatggaacctaccagacctgggtggccaccaggatttgGaaaggagaggagcagaggtt
 cacctgctacatggaacacagcgggaatcacagcactcacctgtgccctctgggaaagtgtggtgcttcagagt
 20 cattggcagacattccatgtttctgctgttgctgctgctgctatttttgttattatttttctatgtccgttggt
 gtaagaagaaaacatcagctgcagagggtccag (SEQ ID NO:1583477)

MICA*046

gtcttcgttataacctcacggtgctgtccgggggatggatctgtgcagtcagggtttctcgtgaggtacatctgga
 tggtcagcccttctcgcgtgtgacaggcagaaatgcaggggcaaagccccaggacagtgggcagaagatgtcctg
 25 ggaaataagacatgggacagagagaccagggaacttgacagggaacggaaaggacctcaggatgacctggctcata
 tcaaggaccagaaagaaggcttgcattccctccaggagattagggtctgtgagatccatgaagacaacagcaccag
 gagctcccagcatttttactacgatggggagctcttctctctccaaaacgtggagactgaggaatggacaatgcc

[illegible]

MI CA*047

10 gtcttcgttataacctaaccgtgctgtccgggggatggatctgtgcagtcagggtttctcgctgaggfacatctgga
tggtcagcccttctctgctgtgacaggcgagaaatgcaggggcaaaagccccaggggacagtgaggcagaagatgtcttg
ggaaataagacatgggacagagagaccagggttgacagggaacggaaaggacctcaggatgacctggctcata
tcaaggaccagaaagaaggcttgcatccctccaggagattagggtctgtgagatccatgaagacaacagcaccag
gagctcccagcatttctactacgatggggagctcttctctctccaaaacctggagactgaggaatggacaatgcc
15 cagtcctccagagctcagaccttgccatgaacgtcaggaatttcttgaaggaagatgccatgaagaccaagacac
actatcacgctatgcatgcagactgcctgcaggaaactacggcgatatctaaaatccggcgtagtcttgaggagaac
agtgcaccccatgggtgaatgtcaccgcagcgaggcctcagagggcaacattaccgtgacatgcagggtctctggc
ttctatccctggaatatcacactgagctggcgtcaggatgggtatctttgagccacgacaccagcagtgggggg
atgtctgcctgatgggaatggaacctaccagacctgggtggccaccaggatttccaaggagaggagcagaggtt
20 cacctgctacatggaacacagcgggaatcacagcactcacGctgtgccctctgggaaagtgtgtgtgcttcagagt
cattggcagacattccatgtttctgctgttgctgctgctgctgctgctatTTTTgtattatttttctatgtct
gttgttgaagaagaaaacatcagctgcagagggtccag (SEQ ID NO: 1603479)

MICA*048

gtcttcgttataacctcacgggtgctgtcctgggatggatctgtgcagtcagggtttcttgcctgaggtacatctgga
25 tggtcagcccttctctgcctatgacaggcagaaatgcaggggcaagccccagggacagtgggcagaagatgtcctg
ggaaataagacatgggacagagagaccagggttgacagggaacggaaaggacctcaggatgacctggctcata
tcaaggaccagaaagaaggcttgcatccctccaggagattagggtctgtgagatccatgaagacaacagcaccag

gagctcccagcattttctactacgatggggagcttcttctctccaaaacctggagactgaggaatggacagtgcc
 cagtcctccagagctcagaccttggccatgaacgtcaggaatttcttgaaggaagatgcatgaagaccaagacac
 actatcacgctatgcatgcagactgcctgcaggaactacggcgatatctagaatccggcgtagtctgaggagaac
 agtgcccccatggtgaatgtcaccgcagcgaggcctcagagggaacatcaccgtgacatgcagggttccagc
 5 ttctatccccggaatatcactgacctggcgtcaggatggggtatctttgagccacgacaccagcagtgggggg
 atgtcctgcctgatgggaatggaacctaccagacctgggtggccaccaggatttgcgaggagaggagcagaggtt
 cacctgctacatggaacacagcggaatcacagcactcacctgtgccctctgggaaagtgtggtgcttcagagt
 cattggcagacattccatgtttctgctgttgctgtgctgtgctgtatTTTTgttattattattttctatgtccgtt
 gttgtaagaagaaaacatcagctgcagaTgggtccagagctcgtgagcctgcaggctcctggatcaacaccagttgg
 10 gacgagtgaccacagggatgccacacagctcggatttcagcctctgatgtcagctcttgggtccactggctccact
 (SEQ ID NO:4613480)

MICA*049

gtcttcggttataacctcacggtgctgtcctgggatggatctgtgcagtcagggtttcttctgctgaggtacatctgga
 tggtcagcccttctcgctatgacaggcagaaatgcaggggcaaagccccaggagacagtgggcagaagatgtcctg
 15 ggaaataagacatgggacagagagaccagggaacttgacagggaacggaaaggacctcaggatgacctgggtcata
 tcaaggaccagaaagaaggcttgattccctccaggagattagggctctgtgagatccatgaagacaacagcaccag
 gagctcccagcattttctactacgatggggagcttcttctctccaaaacctggagactgaggaatggacagtgcc
 cagtcctccagagctcagaccttggccatgaacgtcaggaatttcttgaaggaagatgcatgaagaccaagacac
 actatcacgctatgcatgcagactgcctgcaggaactacggcgatatctagaatccagcgtagtctgaggagaac
 20 agtgcccccatggtgaatgtcaccgcagcgaggcctcagagggaacatcaccgtgacatgcagggttccagc
 ttctatccccggaatatcacactgacctggcgtcaggatggggtatctttgagccacgacaccagcagtgggggg
 atgtcctgcctgatgggaatggaacctaccagacctgggtggccaccaggatttccaaggagaggagcagaggtt
 cacctgctacatggaacacagcggaatcacagcactcacctgtgccctctgggaaagtgtggtgcttcagagt
 cattggcagacattccatgtttctgctgttgctgtgctgtgctgtgctgtatTTTTgttattattattttctatgtcc
 25 gttgttgaagaagaaaacatcagctgcagagggtccagagctcgtgagcctgcaggctcctggatcaacaccagt
 tgggaTgagtgaccacagggatgccacacagctcggatttcagcctctgatgtcagctcttgggtccactggctcc
 act (SEQ ID NO:4623481)

In the following, Probe List M1 and M2 are shown in Tables 25-1 and 25-2 and Tables 26-1 and 26-2 and Tables 27-1 and 27-2 and Tables 28-1 and 28-2 respectively.

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Table 25-1

Probe No.	Base Sequence
0	tgg gac aga gag acc agA (SEQ ID No: 1 3320)
1	tcc caa aac ctg gag act A (SEQ ID No: 2 3321)
2	g gaa cta cgg cga tat cta A (SEQ ID No: 3 3322)
3	cgg cga tat cta aaa tcc G (SEQ ID No: 4 3323)
4	cc tgg aat atc aca ctg aG (SEQ ID No: 5 3324)
5	t att ttt gtt att att att ttc taC (SEQ ID No: 6 3325)
6	c ctc acg gtg ctg tcc G (SEQ ID No: 7 3326)
7	gtg aat gtc acc cgc agT (SEQ ID No: 8 3327)
8	c gta gtc ctg agg aga aG (SEQ ID No: 9 3328)
9	t cag cct ctg atg tca gC (SEQ ID No: 10 3329)
10	cag ccc ttc ctg cgc to (SEQ ID No: 11 3330)
11	gag act gag gaa tgg aca G (SEQ ID No: 12 3331)
12	cc cgg aat atc aca ctg aC (SEQ ID No: 13 3332)
13	gcc acc agg att tgc cG (SEQ ID No: 14 3333)
14	g cga tat cta gat tcc agc A (SEQ ID No: 15 3334)
15	gg gac aga gag acc agG (SEQ ID No: 16 3335)
16	cc caa aac ctg gag act G (SEQ ID No: 17 3336)
17	gtt tct gct gtt gct gct G (SEQ ID No: 18 3337)
18	ag acc tgg gtg gcc acT (SEQ ID No: 19 3338)
19	t gct gct g gct gct gcT (SEQ ID No: 20 3339)
20	c acc cgc agc gag gcA (SEQ ID No: 21 3340)
21	ctc ttc ctc tcc caa aac G (SEQ ID No: 22 3341)
22	gc tcc cag cat ttc tac taT (SEQ ID No: 23 3342)
23	cgg cga tat cta gaa tcc A (SEQ ID No: 24 3343)
24	g tca gct ctt ggg tcc G (SEQ ID No: 25 3344)
25	cc atg aag acc aag aca cT (SEQ ID No: 26 3345)
26	tgc caa gga gag gag caA (SEQ ID No: 27 3346)
27	gaa cta cgg cga tat cta G (SEQ ID No: 28 3347)
28	c cag cat ttc tac tac gat A (SEQ ID No: 29 3348)
29	gct gca gag ggt cca gG (SEQ ID No: 30 3349)
30	c tgg cgt cag gat ggg C (SEQ ID No: 31 3350)

Table 25-2

Probe No.	Base Sequence
31	ggc ttg cat tcc ctc cG (SEQ ID No: 32 <u>3351</u>)
32	c cca gtt ggg acg agt gT (SEQ ID No: 33 <u>3352</u>)
33	ct gct gct gct gct gcT (SEQ ID No: 34 <u>3353</u>)
34	a gaa gat gtc ctg gga aaC (SEQ ID No: 35 <u>3354</u>)
35	t gtg cag tca ggg ttt ctT (SEQ ID No: 36 <u>3355</u>)
36	gcc tca gag ggc aac atC (SEQ ID No: 37 <u>3356</u>)
37	ct gct gct gct gct gcT (SEQ ID No: 38 <u>3357</u>)
38	ttc tat ccc cgg aat atc aT (SEQ ID No: 39 <u>3358</u>)
39	gtt gct gct gct gct gcT (SEQ ID No: 40 <u>3359</u>)
40	cag acc ttg gcc atg aac A (SEQ ID No: 41 <u>3360</u>)
41	gg aat cac agc act cac G (SEQ ID No: 42 <u>3361</u>)
42	a cgg cga tat cta aaa tcc A (SEQ ID No: 43 <u>3362</u>)
43	ctc tcc caa aac ctg gag T (SEQ ID No: 44 <u>3363</u>)
44	ttc ttg aag gaa gat gcc G (SEQ ID No: 45 <u>3364</u>)
45	cat gaa gac aac agc acc aA (SEQ ID No: 46 <u>3365</u>)
46	ggg ttt atc gct gag gG (SEQ ID No: 47 <u>3366</u>)
47	caa gga gag gag cag agT (SEQ ID No: 48 <u>3367</u>)
48	g gcc acc agg att tgc G (SEQ ID No: 49 <u>3368</u>)
49	c agg gct tct ggc ttc tG (SEQ ID No: 50 <u>3369</u>)
50	ag aaa aca tca gct gca gaT (SEQ ID No: 51 <u>3370</u>)
51	at caa cac cca gtt ggg aT (SEQ ID No: 52 <u>3371</u>)

Table 26-1

Probe No.	Base Sequence
0	a gag acc agA gac ttg aca (SEQ ID No: <u>533372</u>)
1	ctg gag act Aag gaa tgg a (SEQ ID No: <u>543373</u>)
2	cga tat cta Aaa tcc ggc g (SEQ ID No: <u>553374</u>)
3	cta aaa tcc Ggc gta gtc c (SEQ ID No: <u>563375</u>)
4	c aca ctg aGc tgg cgt c (SEQ ID No: <u>573376</u>)
5	att att ttc taC gtc tgt tgt t (SEQ ID No: <u>583377</u>)
6	tg ctg tcc Ggg gat gga (SEQ ID No: <u>593378</u>)
7	acc cgc agT gag gcc tc (SEQ ID No: <u>603379</u>)
8	g agg aga aGa gtg ccc c (SEQ ID No: <u>613380</u>)
9	tg atg tca gCt ctt ggg tc (SEQ ID No: <u>623381</u>)
10	c ctg cgc tAt gac agg c (SEQ ID No: <u>633382</u>)
11	gaa tgg aca Gtg ccc cag (SEQ ID No: <u>643383</u>)
12	c aca ctg aCc tgg cgt c (SEQ ID No: <u>653384</u>)
13	gg att tgc cGa gga gag g (SEQ ID No: <u>663385</u>)
14	gaa tcc agc Ata gtc ctg a (SEQ ID No: <u>673386</u>)
15	a gag acc agG gac ttg ac (SEQ ID No: <u>683387</u>)
16	ctg gag act Gag gaa tgg (SEQ ID No: <u>693388</u>)
17	gtt gct gct G gct gct g (SEQ ID No: <u>703389</u>)
18	g gtg gcc acT agg att tg (SEQ ID No: <u>713390</u>)
19	gct gct g gct gct gcT a (SEQ ID No: <u>723391</u>)
20	agc gag gcA tca gag gg (SEQ ID No: <u>733392</u>)
21	tcc caa aac Gtg gag act g (SEQ ID No: <u>743393</u>)
22	at ttc tac taT gat ggg gag (SEQ ID No: <u>753394</u>)
23	cta gaa tcc Agc gta gtc c (SEQ ID No: <u>763395</u>)
24	t ggg tcc Gct ggc tcc (SEQ ID No: <u>773396</u>)
25	cc aag aca cTc tat cac gc (SEQ ID No: <u>783397</u>)
26	a gag gag caA agg ttc acc (SEQ ID No: <u>793398</u>)
27	cga tat cta Gaa tcc ggc g (SEQ ID No: <u>803399</u>)
28	tac tac gat Agg gag ctc t (SEQ ID No: <u>813400</u>)
29	g ggt cca gGg ctc gtg (SEQ ID No: <u>823401</u>)
30	cag gat ggg Cta tct ttg a (SEQ ID No: <u>833402</u>)

Table 26-2

Probe No.	Base Sequence
31	at tcc ctc cGg gag att ag (SEQ ID No: 84 3403)
32	t gct gct gct gct gcT at (SEQ ID No: 85 3404)
33	ct gct gct gcT att ttt gtt (SEQ ID No: 86 3405)
34	c ctg gga aaC aag aca tgg (SEQ ID No: 87 3406)
35	a ggg ttt ctT gct gag gta (SEQ ID No: 88 3407)
36	g ggc aac atC acc gtg ac (SEQ ID No: 89 3408)
37	gct gct gct gct gcT att (SEQ ID No: 90 3409)
38	cgg aat atc aTa ctg acc tg (SEQ ID No: 91 3410)
39	gcc atg aac Atc agg aat tt (SEQ ID No: 92 3411)
40	gc act cac Gct gtg ccc (SEQ ID No: 93 3412)
41	cta aaa tcc Ag gta gtc c (SEQ ID No: 94 3413)
42	aac ctg gag Tct gag gaa t (SEQ ID No: 95 3414)
43	gaa gat gcc Tct gag gaa t (SEQ ID No: 96 3415)
44	c agc acc aAg acg tcc c (SEQ ID No: 97 3416)
45	c gct gag gGa cat ctg g (SEQ ID No: 98 3417)
46	g gag cag agT ttc acc tg (SEQ ID No: 99 3418)
47	agg att tgc Gaa gga gag g (SEQ ID No: 100 3419)
48	ct ggc ttc tGt ccc tgg a (SEQ ID No: 101 3420)
49	a gct gca gaT ggt cca ga (SEQ ID No: 102 3421)
50	ca gtt ggg aTg agt gac c (SEQ ID No: 103 3422)

Table 27-1

Allele Number	Probe Number for Detection				
MICA*001	0	1	2	3	4
MICA*00201	5				
MICA*00202	6	7			
MICA*004	8	9			
MICA*005	10	11	12	13	
MICA*006	14				
MICA*00701	7				
MICA*00702	15	16			
MICA*00801	17	9			
MICA*00802	18	19			
MICA*00803	20				
MICA*00901	21	9			
MICA*00902	22				
MICA*010	23	13	9		
MICA*011	24				
MICA*01201	25				
MICA*01202	26				
MICA*013	6	27	13		
MICA*014	28	8			
MICA*015	28	29			
MICA*016	30	9			
MICA*017	31				
MICA*018	16				
MICA*019	32				
MICA*020	33				
MICA*021	34				
MICA*022	6	23	13		
MICA*023	6	17			
MICA*024	35	10	11	36	12
MICA*025	35	16			

Table 27-2

Allele Number	Probe Number for Detection		
MICA*026	7	37	
MICA*027	38	39	
MICA*028	27	17	
MICA*029	40		
MICA*030	41		
MICA*031	35		
MICA*032	25	42	8
MICA*033	43		
MICA*034	44	12	
MICA*035	6	38	
MICA*036	45		
MICA*037	38		
MICA*038	36		
MICA*039	30		
MICA*040	15		
MICA*041	46	5	
MICA*042	18		
MICA*043	47		
MICA*044	6	8	12
MICA*045	48		
MICA*046	49		
MICA*047	46	41	
MICA*048	50		
MICA*049	51		

Table 28-1

Allele Number	Probe Number for Detection				
MICA*001	0	1	2	3	4
MICA*00201	5				
MICA*00202	6	7			
MICA*004	8	9			
MICA*005	10	11	12	13	
MICA*006	14				
MICA*00701	7				
MICA*00702	15	16			
MICA*00801	17	9			
MICA*00802	18	19			
MICA*00803	20				
MICA*00901	21	9			
MICA*00902	22				
MICA*010	23	13	9		
MICA*011	24				
MICA*01201	25				
MICA*01202	26				
MICA*013	6	27	13		
MICA*014	28	8			
MICA*015	28	29			
MICA*016	30	9			
MICA*017	31				
MICA*018	16				
MICA*019	23	13	32		
MICA*020	33				

Table 28-2

Allele Number	Probe Number for Detection				
MICA*021	34				
MICA*022	6	23	13		
MICA*023	6	17			
MICA*024	35	10	11	36	12
MICA*025	35	16			
MICA*026	7	37			
MICA*027	38	32			
MICA*028	27	17			
MICA*029	39				
MICA*030	40				
MICA*031	35				
MICA*032	25	41	8		
MICA*033	42				
MICA*034	43	12			
MICA*035	6	38			
MICA*036	44				
MICA*037	38				
MICA*038	36				
MICA*039	30				
MICA*040	15				
MICA*041	45	5			
MICA*042	18				
MICA*043	46				
MICA*044	6	8	12		
MICA*045	47				
MICA*046	48				
MICA*047	45	40			
MICA*048	49				
MICA*049	50				

The present invention is not limited to the above embodiments and various changes and modifications can be made within the spirit and scope of the present invention. Therefore, to apprise the public of the scope of the present invention, the following claims are made.

This application claims priority from Japanese Patent Application Nos. 2003-430553 filed on December 25, 2003, 2003-430554 filed on December 25, 2003, 2003-430555 filed on December 25, 2003, 2003-430556 filed on December 25, 2003, 2003-430557 filed on December 25, 2003, 2003-430558 filed on December 25, 2003 and 2003-430559 filed on December 25, 2003, which are hereby incorporated by reference herein.

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